TEACHING AIDS

LOW-COST, NO-COST TEACHING AIDS

MARY ANN DASGUPTA

Creative Learning Series

Low-Cost, No-Cost Teaching Aids

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To Arvind — my Friend & Inspiration!
Love & Peace
Mary

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INTRODUCTION

Making teaching aids is an emotionally, intellectually, aesthetically and professionally rewarding experience. It is an act of creation. It is an affirmation—an affirmation that I as a teacher care about the pupils and believe that, with the help of these learning aids, they can *learn*. It is an act of *love*.

Teaching aids provide a stimilus for exploration and thinking. With the added input of verbal, personal communication with an adult, *interaction* and *discussion* arise... and these are crucial to real, activity-based learning. Adults (and older children) help younger ones to *interpret* sensory and language experiences, to *clarify* them and *relate* them to their previous understandings. Children then *learn* by blending language with *experiences*. They learn to *think*.

For maximum mental growth and personality development, a child's life needs to be filled with stimulating, encouraging *experiences*. Appropriate learning materials (teachings aids) help children to develop their innate abilities.

Who can make these teaching aids?

- Teachers, *anganwadi/balwadi* workers
- Teacher-trainees and workshop/refresher course participants
- Older school students... to fulfil the community service requirements of their syllabus
- Interested parents and other community volunteers
- Residents of old-age homes, jail inmates, and others.

MARY ANN DASGUPTA

Section I

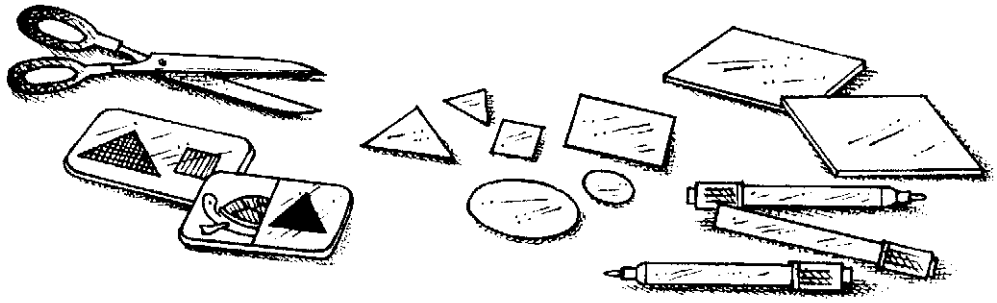
BASIC MATHEMATICS

COLOUR, SHAPE, SIZE DOMINOES

- **Concept of Size**
- **Matching According to Colour, Shape and Size**
- **Basic Geometric Shapes: Circle, Square, Triangle**

You will need

- 19 pieces of very stiff card 2 ½ x 4 ¾ inches or 6 x 12 cm
- Permanent marking pens: red, blue, green, black
- Scissors
- Stencils for small and large circles, squares and triangles. These can be made from an old x-ray sheet

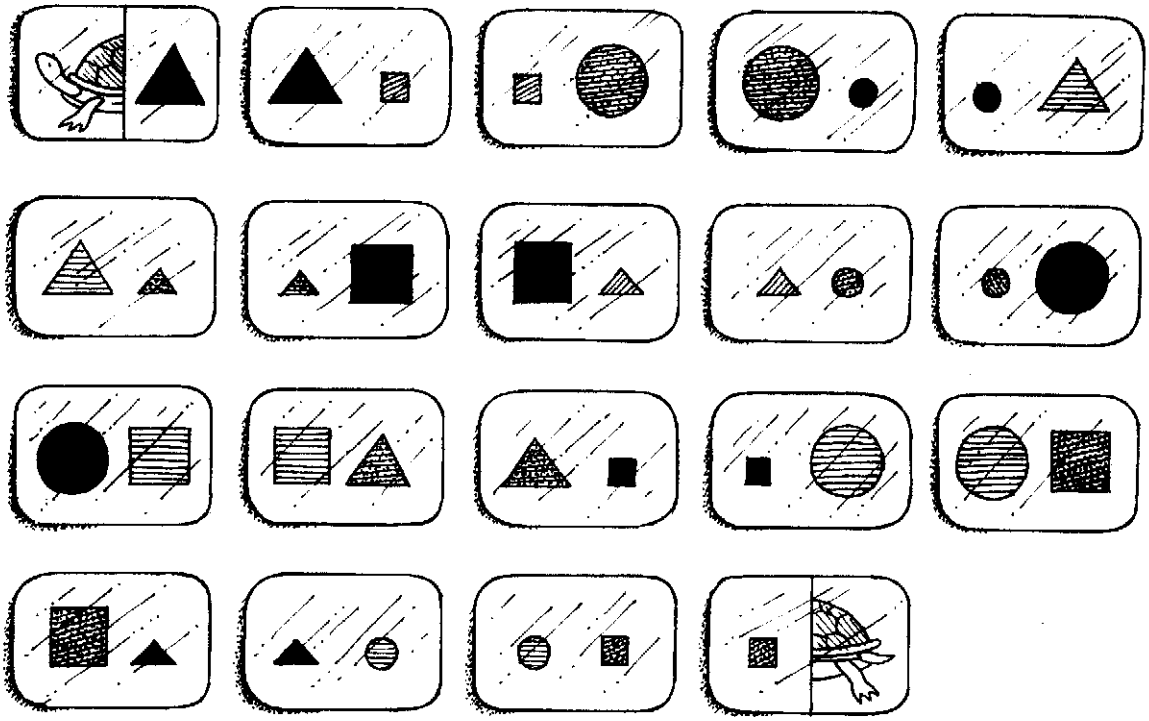


How to make

1. Using the scissors, round all four corners of each card. This will make them last longer during repeated use.
2. Draw a thick black border round each card.
3. Draw a thin black line down the middle of two cards. On the left half of one, draw the head of a turtle or a fish. On the right half of the other card, draw the tail-end of a turtle or a fish. The 'head' card indicates the beginning of the domino line and the 'tail' card shows the end.
4. Using the shape-stencils, draw and then colour the shapes on the card according to this pattern:

How to use

1. Put the 'head' card face-up on the table/floor.
2. Mix up all the other cards and give one or two to each child in the group.
3. Say "Big red triangle, big red triangle... who has the big red triangle?"
4. The child with the big red triangle places sit next to the 'head' card so that the two big red triangles are next to each other.



5. Say "Little green square, little green square... who has the little green square?"
6. The child with the little green square card places it next to the little green square of the other card so that the little green squares are next to each other.
7. Continue till you come to the 'tail' card.

***Note*:** This can also be played as a game for 2 to 4 children. The 'head' card is placed on the table/floor and the rest are mixed up and divided equally to the players. The player who gets rid of all of his/her cards first is the winner.

Other Types of Dominoes:

You could make *domino sets of vegetables, fruits, modes of transport*, etc. by cutting out and pasting pictures from the cheap charts available in the market. You will need two such charts for each set of dominoes.

Alphabet Dominoes for A, a B, b C, c D, d... etc.

Number Dominoes with the number and its spelling: 1, one 2, two 3, three... etc.

DESIGN BOARD

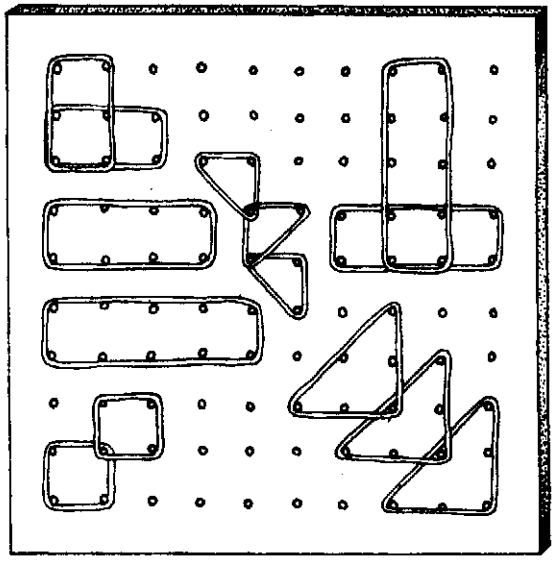
• Development of Sense of Balance and Design
• Forming Geometric Shapes

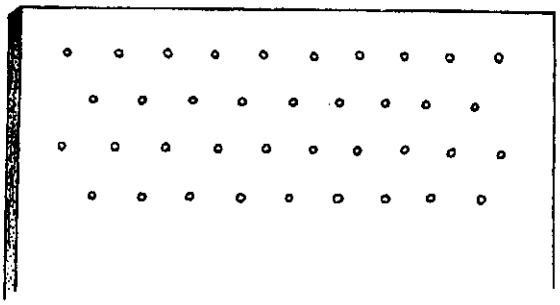
You will need

- A 28 cm x 28 cm square piece of pressed board or soft wood like that used in packing cases
- Hundred headless nails with their tops nicely finished so that children do not hurt themselves
- A collection of rubber bands of different colours and sizes

How to make

1. Rub sandpaper over the piece of wood.
2. Leaving a 1 cm margin all around, mark equal points for inserting the nails.
3. The nails should be evenly driven in so that the top surface of the board is fairly level. Drive the nails deeply enough to ensure that the tension from the rubber bands does not bend the nails out of place.





How to use

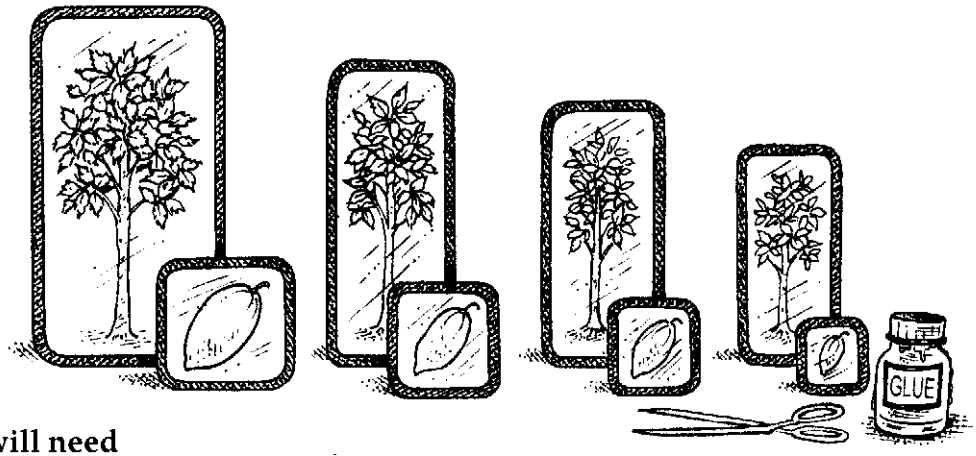
1. Stretch the rubber bands round the nails to construct a wide variety of patterns and geometric shapes.

Variation

Make another board with an alternating grid of 10 to 9 nails and see how the pattern possibilities differ.

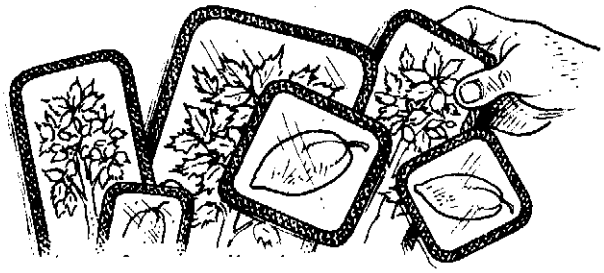
PAPAYA PARTNERS

- **Graded Sizes**
- **Large to Small/Small to Large**



You will need

- Pictures of four papaya trees... from small to large
- Pictures of four papayas... from small to large
- Card, glue, scissors



How to make

1. Paste the pictures on card.
2. Cut them out.

How to use

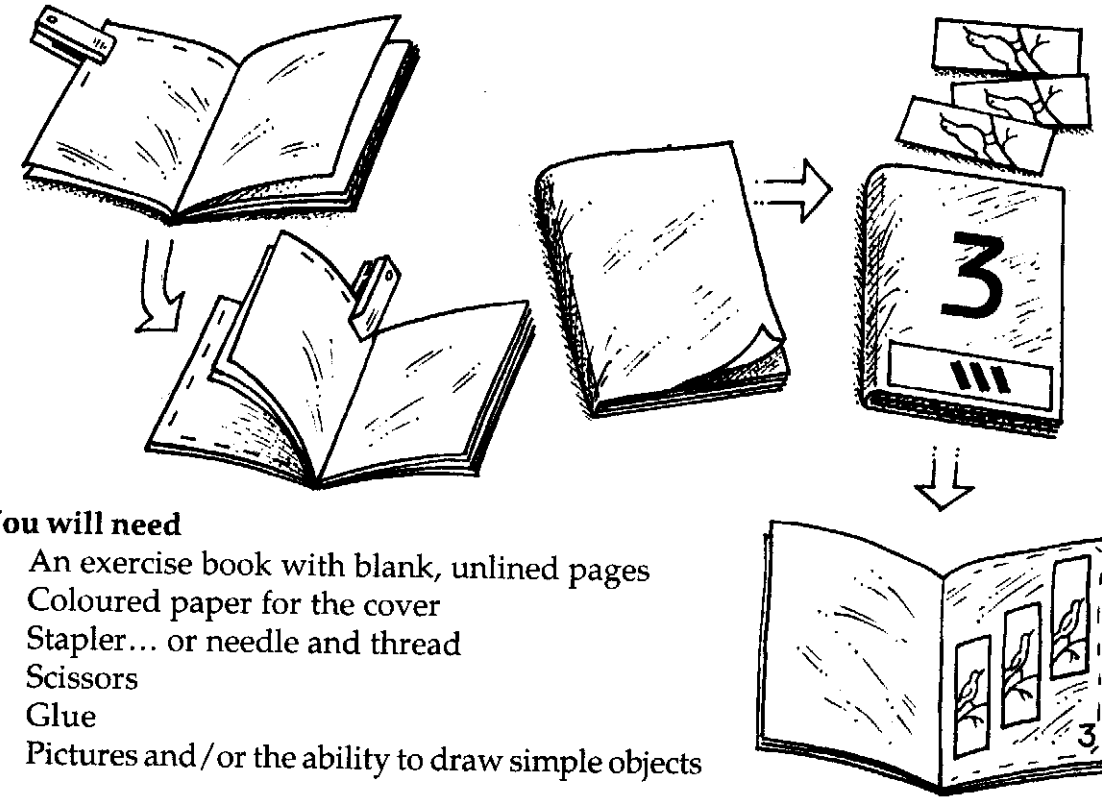
1. Ask children to arrange the trees in order... from small to large.
2. Show them the papayas.
3. Pick up the smallest papaya and ask them which tree it comes from.
4. Ask them to find the next biggest papaya.
5. Put it on the next biggest tree, etc.
6. Then arrange the trees from large to small and match the papayas to them.

Note: **Variations of this could be with**

- Other fruit trees like mangoes, bananas, apples, etc.
- Little girls and their dolls.
- Little boys and their toy cars or balls.
- Flowers and butterflies, etc.

NUMBER BOOKS

- **Counting**
- **Number Identification**



You will need

- An exercise book with blank, unlined pages
- Coloured paper for the cover
- Stapler... or needle and thread
- Scissors
- Glue
- Pictures and/or the ability to draw simple objects

How to make

1. Staple or stitch the first 2 pages to the front cover and the last 2 pages to the back cover. This will make the book more sturdy.
2. Staple or stitch 3 or 4 pages together till you come to the end of the book. This will give the book thick pages which can easily be turned by young fingers.
3. Use scissors to round the corners of each thickened page and also the cover. This will prevent corners from getting bent by frequent turning.
4. Cover the book with a paper of a single colour.
5. Identify the book by drawing a large-size number on the cover and also making the corresponding number of marks beside it... for the child who can count, but is still learning the shape of the number. See illustration.
6. On each page inside the book, paste or draw the corresponding number of

objects and write the number beside them. For instance, in a 3 book you could draw 3 umbrellas on one page, paste 3 bus tickets on another, stick 3 postage stamps on another, or 3 stickers, 3 pictures of birds, 3 pictures of cars, etc.

How to use

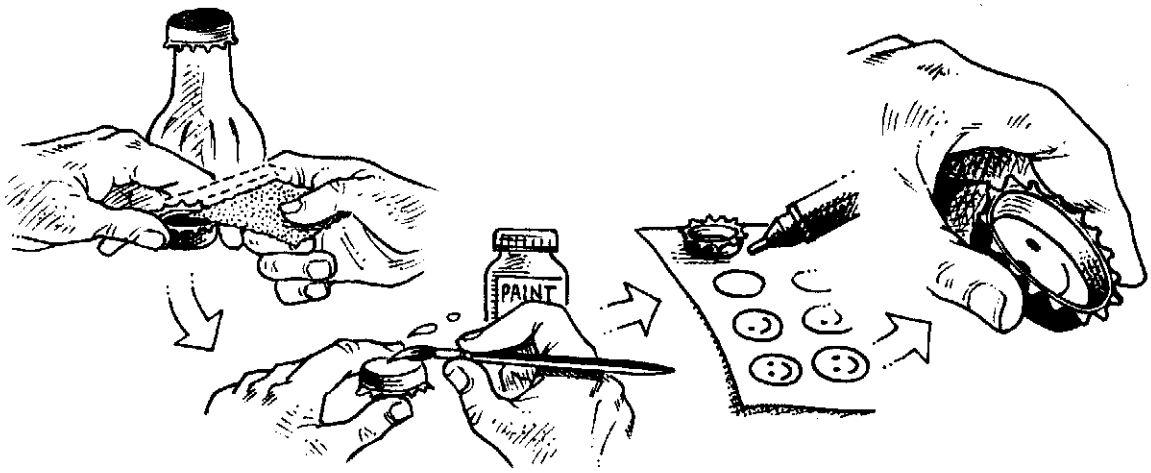
1. Gradually make up to ten such books... for the numbers 1 to 10.
2. You could also make a ZERO book... to introduce the concept of 'zero' as 'nothing'. All the pages, of course, would be left blank!

WAKING/SLEEPING BOTTLE CAPS

- **Counting 0 to 5**
- **Seeing that Zero is Nothing**
- **Addition/Subtraction Facts of 5**
- **Mental Math**

You will need

- 5 bottle caps
- A little bit of enamel paint... any bright colour. This is the type of paint that is usually used on doors and windows
- A couple of plain, sticky address labels or white paper and Dendrite gum
- A permanent black marking pen

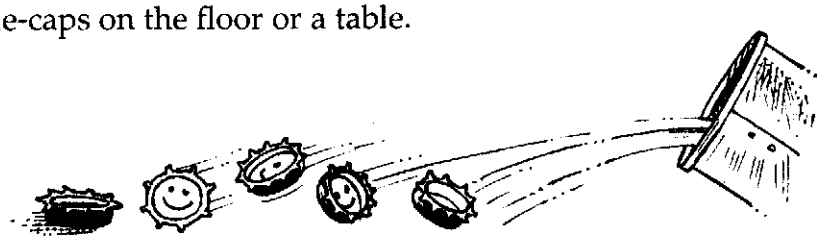


How to make

1. Smooth the edges of the bottle caps so they will not scratch children's hands. This can be done by simply rubbing on a cement surface or using sandpaper.
2. Paint the outside of the bottle caps and allow to dry. Note that they should all be the same colour.
3. On the sticky labels or white paper, draw 5 circles the size of the inside of a bottle cap.
4. Draw a 'Smiley Face' on each one... with the marking pen.
5. When the bottle caps are dry, stick a 'Smiley Face' inside each one.

How to use

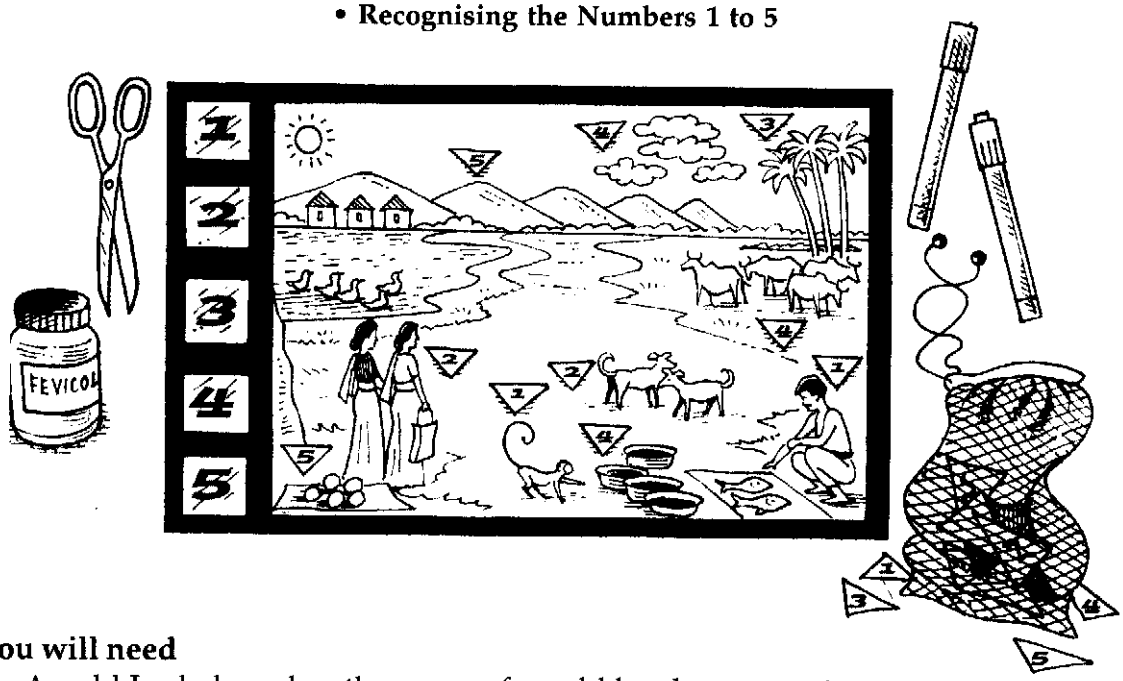
1. Hold all 5 bottle caps in lightly cupped hands and give them a good, jingly-sounding shake. You could also use a small tin as it would make even more of a sound.
2. Gently toss the bottle-caps on the floor or a table.
3. As you do so, put your finger on your lips and make the "Shhhhh"... sound.



4. When the quiet children see that some of the bottle caps are face-up (showing the 'Smiley Face') and some of them are face-down, make the "Shhhhh"... sound again and softly ask them: "How many bottle caps are sleeping?" and "How many are awake?" "How many all together?"
5. Have the children take turns shaking and tossing the bottle caps.
6. You will get all the combinations of 5+0, 0+5, 4+1, 1+4, 3+2 and 2+3 in an enjoyably repetitive game format.
7. For older children, you could do this with up to 10 bottle caps.

COUNT TO 5 SCENERY: A BOARDGAME

- **Identifying Groups of 1, 2, 3, 4 and 5**
- **Recognising the Numbers 1 to 5**



You will need

- An old Ludo board or the cover of an old hard-cover register
- Fevicol/glue
- A sheet of brightly-coloured chart paper to cover the outside of the board
- A sheet of light-coloured chart paper to cover the inside of the board
- A permanent black marking pen for writing the name on the outside-cover and for drawing the scenery inside
- A sheet of stiff card for cutting into ¾-inch or 1-inch squares
- Scissors

How to make

1. Cover the outside of the board with brightly-coloured chart-paper. Let about ½-inch of the paper overlap onto the inside.
2. Cut the paper for the inside of the board.
3. Draw a simple scenery on it that will show several groups of 1, 2, 3, 4 and 5 things. For instance, if you draw a market scene, there can be 1 person selling fish, 1 dog, 1 sun in the sky, 2 cats sleeping side-by-side, 2 bicycles parked under a tree, 2 crows on a branch, 3 pumpkins in a basket, 3 bunches of bananas, 3 coconut trees standing together, each with 4 or 5 coconuts, etc.

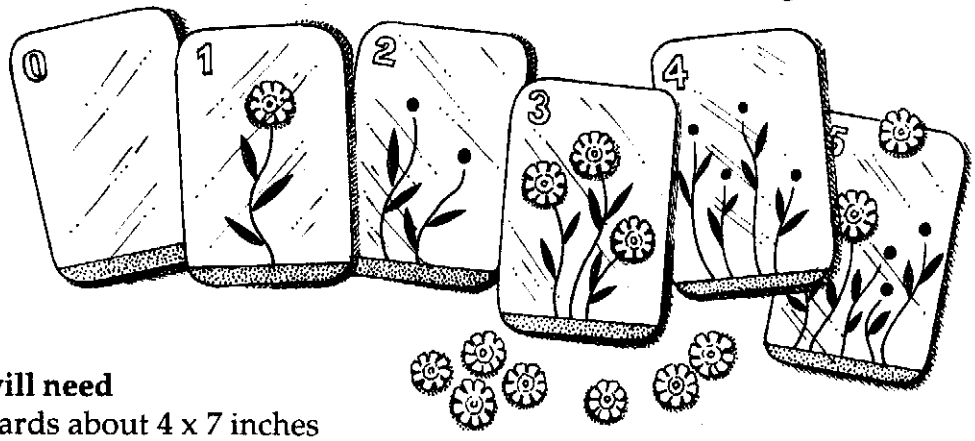
4. Along the left-side of the scenery, make boxes where the number-pieces are to be kept.
5. Paste the scenery on the inside of the board.
6. Cut out 30 squares from the stiff card.
7. Write the number 1 on 6 cards, the number 2 on 6 cards, the number 3 on 6 cards, etc.
8. So that the number squares do not get lost, keep them in a covered soap-box or in an envelope.

How to use

1. Show children the gameboard.
2. Discuss the picture.
3. Note the numbers written on the side.
4. Show the square number cards and ask children to put them in the correct boxes.
5. Discuss the picture again... this time, noticing how many crows there are, how many dogs, etc.
6. Give the number 1 squares to 6 children and ask each one to put their 1-card on the drawing where there is just one of an object.
7. Give the number 2 squares to 6 children and ask each one to put their card on the drawing where there are groups of 2.
8. Continue for groups of 3, 4 and 5.

0 TO 5 FLOWER CARDS

• Identification of Numerals 0 to 5... Local Numbers + English
• One-to-one Correspondence
• Simple Understanding that 'Zero' is Nothing



You will need

- 6 cards about 4 x 7 inches
- 15 real or plastic flowers... or 15 circles of card with a single flower drawn on each one
- A green and a black marking pen or crayon

How to make

1. The zero-card has only a zero in the upper left corner and the lower right.
2. All the other cards have a number from 1 to 5 written in the corners... local language in the upper left and English in the lower right.
3. Draw green stems and leaves on each card and a little dot to show the number of flowers to be placed on it... according to the number written on the card.

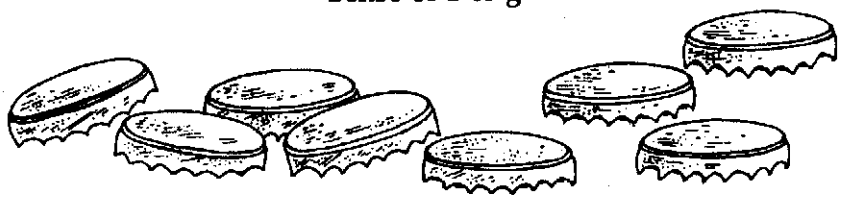
How to use

1. Arrange the cards in order on the floor or a table.
2. The numbers should be facing in the direction of the children.
3. Give a child some flowers and ask him/her to put the right number of flowers on the zero card. Of course, he/she will not put any flowers there!
4. Give some flowers to another child and ask him/her to put the right number on the 1 card.
5. Continue till all the cards have the correct number of flowers.

Note: For very young children, say 'aek' (one) for the Hindi number and 'English aek' for the English number. It is not necessary for them to be able to say one, two, three, etc... but it is very useful to recognise them.

COUNTERS

- **Early Number Concepts**
- **Sense of Design**



You will need

- Collect 100 to 200 soft-drink bottle caps. Paint them in 4 different colours (25 or 50 of each colour)

How to use

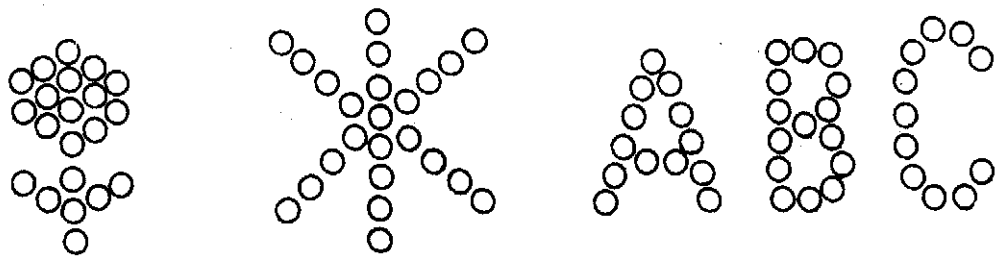
1. Caps can be counted 1, 2, 3, 4, etc.
2. Pattern counting:

O O O	O O O	O O O	O O O	O O O
3 yellow	3 green	3 red	3 blue	3 yellow

O	O O	O O O	O O O O	O O O O O	O O O O O O
1 yellow	2 green	3 red	4 blue	5 yellow	6 green

Variation

1. Score-keeping for children at pre-number writing level.
2. Cover some numbers on an old calendar and have children guess/tell which numbers are covered. This could also be done with *A Hundred Board* (*see* page 46).
3. Designs, alphabets, numbers, etc.

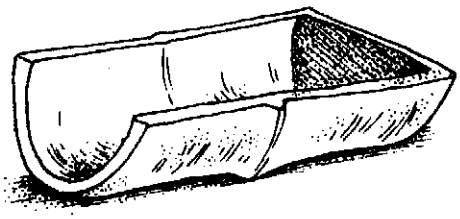


BAMBOO SPINDLES OR SORTING TRAYS

- **Counting**
- **Sorting**
- **Logical Thinking**

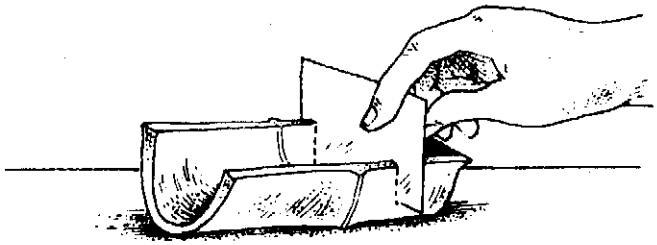
You will need

- Five lengths of green bamboo split in half to make 10 'trays' with each piece being about 20 cm long
- Fifty-five slim bamboo stems about the size of a new pencil
- Sets of sorting/instruction cards made from the back of old visiting cards, or the unused portion of postcard, etc.



How to make

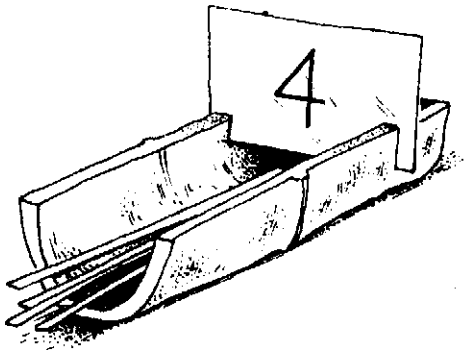
1. Using a hack-saw, cut a slit as shown in the picture so that the sorting/instruction cards can be inserted. When the bamboo is fresh, it is easy to cut.



How to use

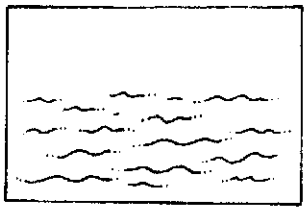
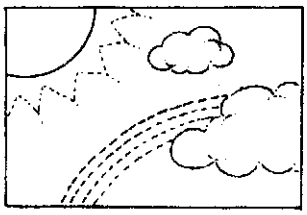
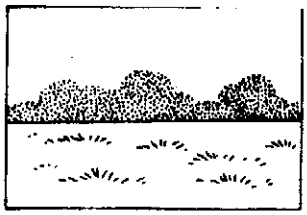
Suggested card sets:

1. Ten trays:
   Sets of numbers 1 to 10 in English and local language.
   Names of numbers 1 to 10 in local language only.

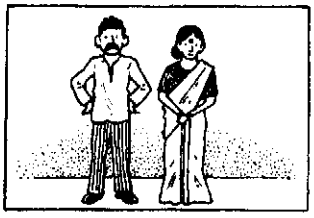
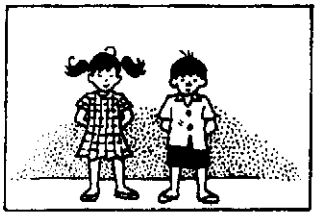


2. Five or more trays:
   Paint or paste a patch of different colours on each card. Then make a collection of similarly-coloured small objects or pieces of paper for the children to sort.

3. Three trays:
   Collect small pictures of different living beings that can move in water, in sky and on the land. Try to include pictures of fisherman, pilots and farmers, too. Where should the frog be placed? Discuss.

4. Two trays:
   Collect small pictures of human beings or animals and their young ones, fruits or vegetables, wild or domestic animals, living or non-living beings, etc. Which picture should be placed in which tray? Discuss.

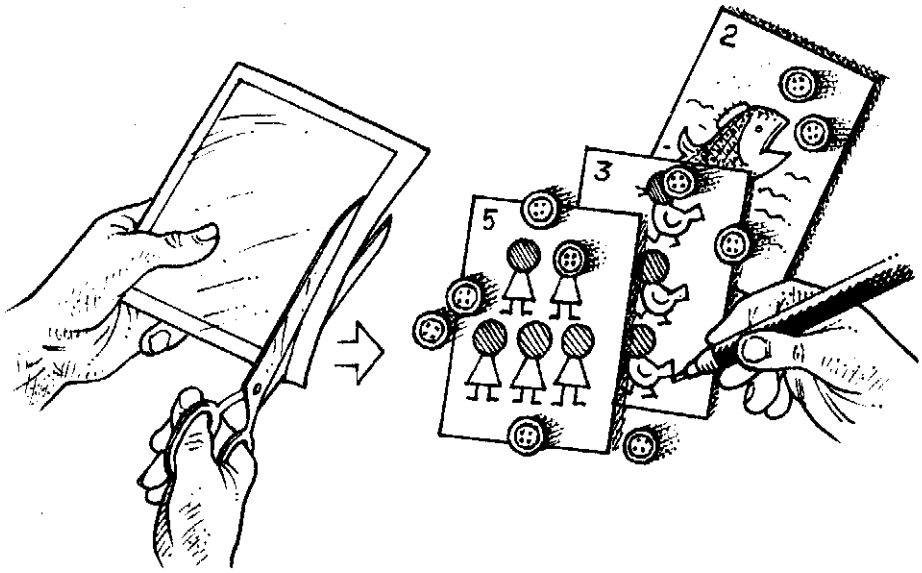



COUNTING CARDS WITH BUTTONS

• Counting 1 to 5 or 1 to 10
• Seeing English Numbers along with Local Language Numbers
• Eye-Hand Control

You will need

- 5 or 10 stiff cards... white or any light colour. Size: about 4 inches wide and 5 inches tall... but larger if the buttons are big
- 15 buttons for 1 to 5 cards
- 45 buttons for 1 to 10 cards... colours may be mixed, but sizes to be the same
- A permanent black pen to make the drawings and a bright-coloured one to write the numbers and draw a border round the cards

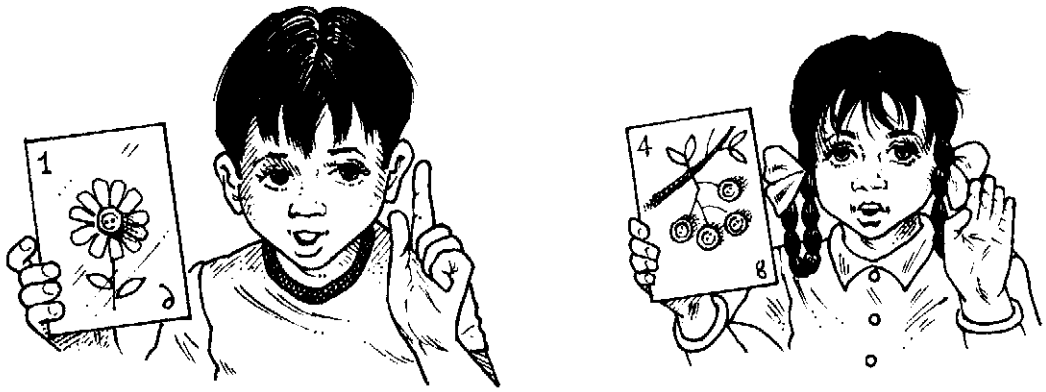


How to make

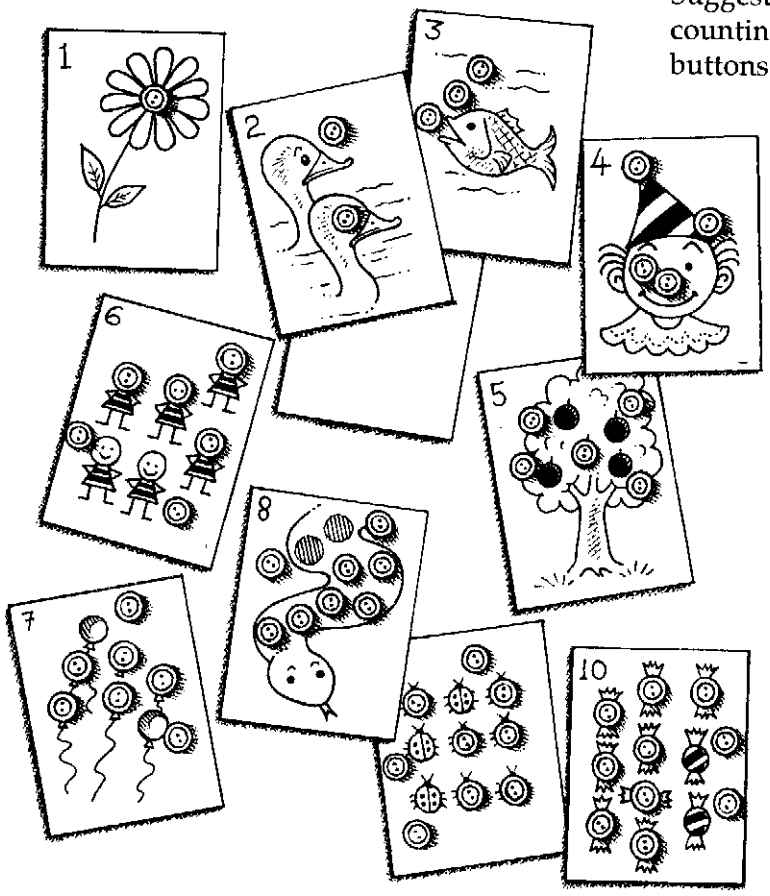
1. Cut the cards to the same size.
2. Draw very simple pictures like the ones illustrated here. Be careful that the circles in each picture are the same size as the buttons you will be using.

How to use

1. Children arrange the cards in left to right order from 1 to 5 or 10.



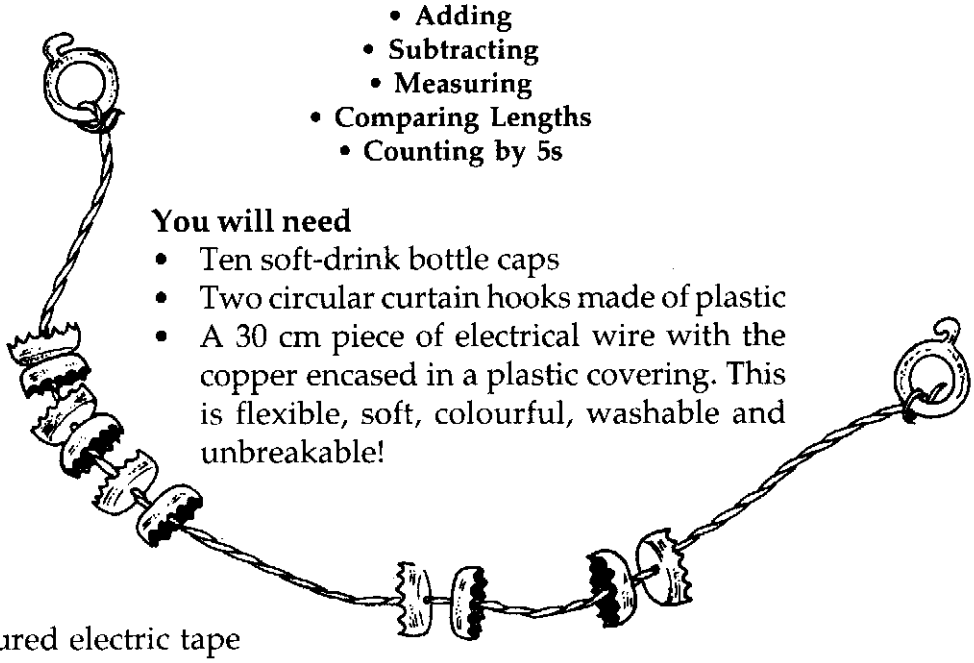
2. As they place **one** button on the **one-card**, say "one" aloud in either or both languages.
3. Continue till all cards are covered.



Suggested drawings for counting cards with buttons

1 TO 10 COUNTING STRINGS

- **Counting 1 to 10, and by 10s to 100**
- **Adding**
- **Subtracting**
- **Measuring**
- **Comparing Lengths**
- **Counting by 5s**



You will need

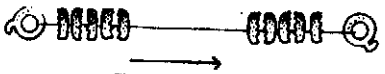
- Ten soft-drink bottle caps
- Two circular curtain hooks made of plastic
- A 30 cm piece of electrical wire with the copper encased in a plastic covering. This is flexible, soft, colourful, washable and unbreakable!
- Coloured electric tape
- A hammer and a nail
- Enamel paint in two contrasting colours

How to make

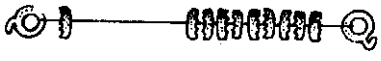
1. Paint 5 caps in one colour and 5 in another.
2. When dry, punch a hole in the centre of each with a hammer and nail (*see* instructions for *Tin Catch-Catch* on page 107).
3. Loop-knot one end of the wire round a hook and fix the end with several rounds of electrician's tape.
4. String 5 caps of one colour and 5 of another. Place them alternately back-to-back and face to face so that they do not overlap and can be seen separately. Leave some extra space to facilitate movement of the caps to the left or right. This enables a child to see easily that 5 + 2 = 7 or 10 – 2 = 8.
5. Fix the other end of the wire to the second hook. The hooks are especially important for joining additional 10-strings to make a chain of 20, 30, etc. With 10 such strings, number work can be done up to 100 besides enabling one to count in groups of 5s and 10s.

How to use

1. Count to 10
2. Step-by-step addition:
   Slide the caps to the right to show



5 + 5 = 10

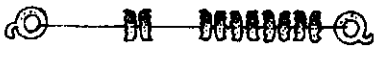


1 + 9 = 10

3 + 7 = 10

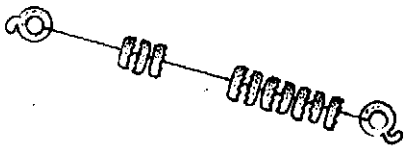
3. Subtraction:
   Slide the caps to the left to show

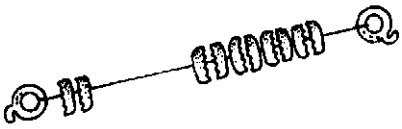
10 – 5 = 5



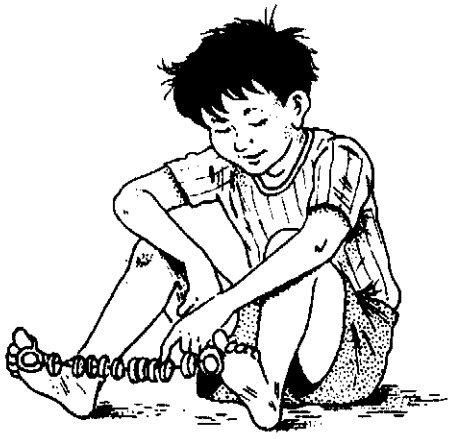
10 – 2 = 8

Note: Teacher can demonstrate addition by holding the string in both hands and simply tilting the string to the right, or tilting the other way to show subtraction.





For individual practice, young children can put the circles of the two hooks on their big toes while sitting on the ground. This makes it easy to move the caps.

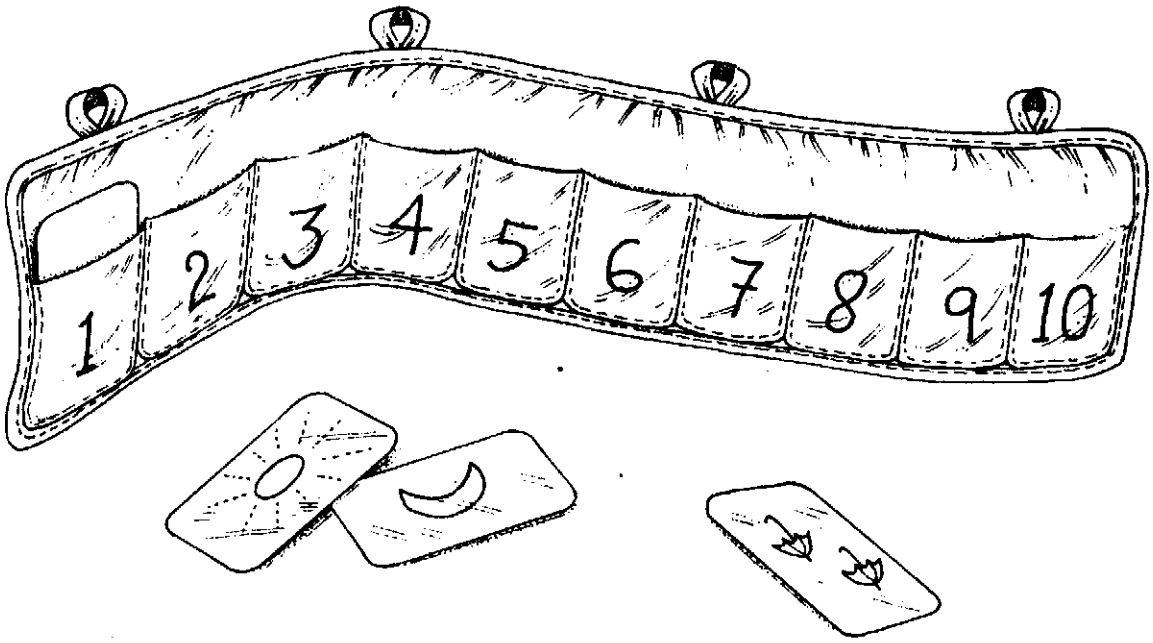


Variation

Use 10 strings linked together to measure a pupil's height or the length of a bench or a table.

NUMBER POCKETS

- **Counting 1 to 10**
- **Vocabulary Development**



You will need

- A pack of old playing cards or the back of old greeting cards cut to size
- Simple line drawings of common objects drawn on the greeting cards or stapled/pasted to the playing cards
- A piece of plain post-office type of marking cloth upon which a strip of bright-coloured cloth is sewn. This strip is then stitched vertically into 10 pockets. The numbers 1 to 10 are either marked or embroidered on the pockets. Loops are sewn along the top, so that the cloth can be hung up in front of the class

How to use

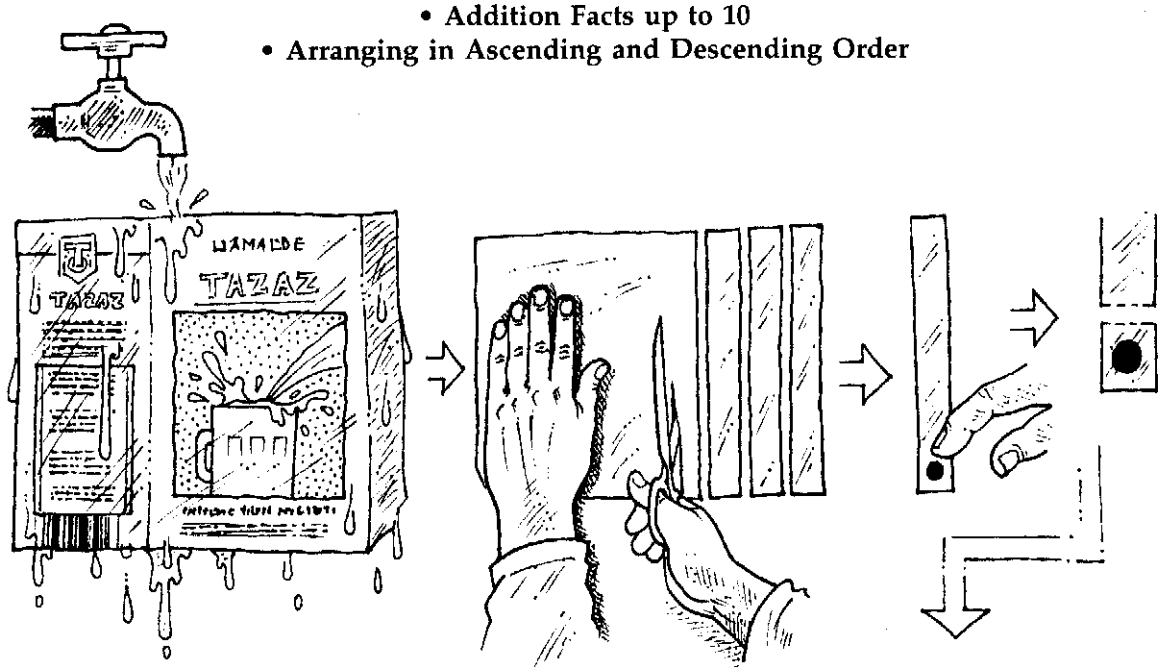
1. Show the pictures. Name the objects. Talk about them. Count them.
2. Keep the cards in a stack with the picture-side facing downwards. Ask a child to pick up a card, count the objects, say the name and number, and place it in the pocket marked with that number.
3. Encourage the child to speak in sentences; for example, "I have 5 red balloons. I will put them in the pocket numbered 5."

4. The pockets can be filled one by one in an orderly manner. For example, the child with the card showing 1 house or 1 egg or 1 car stands up first, speaks out his/her sentence and puts the card in the pocket numbered 1. Then the child with the card having 2 eyes or 2 slippers or 2 socks follows the same procedure till all the pockets are filled.
5. The teacher claps his/her hands a certain number of times. On 4 claps, the child who runs first to place his card for 4 in the right pocket, i.e., pocket numbered 4, is declared the winner.

Courtesy: Learning Tree

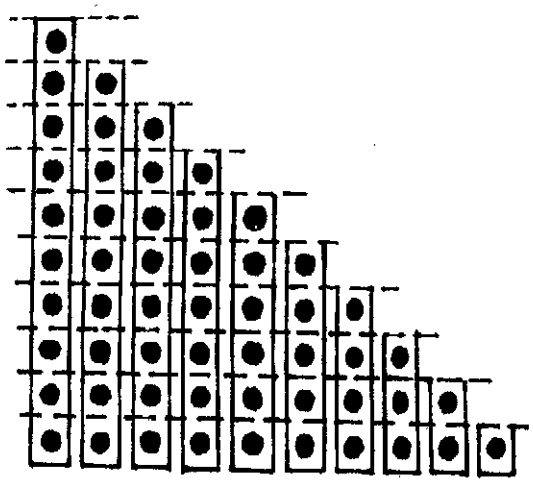
1 TO 10 SILVER STAIRCASE

- **Counting 1 to 10**
- **Addition Facts up to 10**
- **Arranging in Ascending and Descending Order**



You will need

- Scissors
- Self-sticking *bindis*... all the same size and colour
- Empty 1-litre tetrapacks... from milk, juice, cooking oil, etc.



How to make

1. Cut open and wash two 1-litre size tetrapacks.
2. Flatten out and dry.
3. Cut long strips all of the same width.
4. Stick one bindi at the end of a strip... on the silver side, leaving a little space above and below.
5. Cut it out. This is your 'one' piece: O
6. Using this as a measure, cut a strip exactly the length of two 'one' pieces.

7. Still using the same 'one' piece as a measure, mark and cut for 3 to 10.
8. Line the pieces up as shown above.
9. Stick the rest of the bindis in a perfect side-by-side alignment. This is important because then children can easily see that OO + OOO = OOOOO (2 + 3 = 5) when placed above and below each other.
   OOOOO
   OOOOO
   Similarly, they will also see 1 + 9 = 10, 4 + 2 = 6, etc.

How to use

1. Arrange in a going-up staircase as shown in the illustration.
2. Arrange in a going-down staircase.
3. Find combinations of two pieces that match in length: OO + OOO = OOOOO and O + OOOO = OOOOO
4. Look for combinations of three cards: OOO + O + OOOO = OOOOOOOO
5. Combinations of four: 1+2+3+4 = 10

Note: If you make a double set of these strips, you can do a simple match-match of 3 = 3, 7 = 7, etc./make an up-and-down staircase/have many more addition combinations.

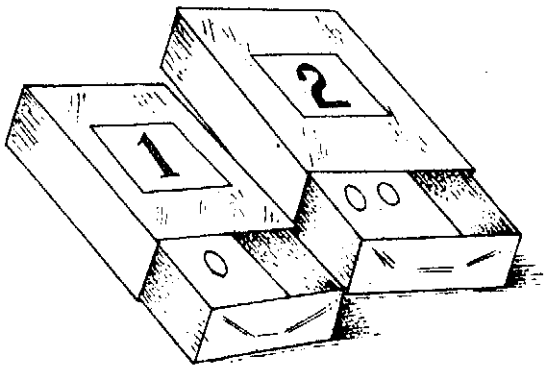
MATCHBOX *BINDI* 1 TO 10

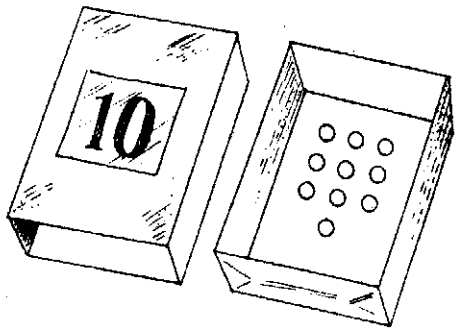
- **Counting 1 to 10**
- **Reading 1 to 10**

You will need

- Ten empty matchboxes, of equal size
- Strips of silver paper from powdered milk/coffee/tea packets
- Fevicol
- White paper (like the inside of old envelopes, for instance)
- Fifty-five bright red, stick-on *bindis* of the size of the following dot:

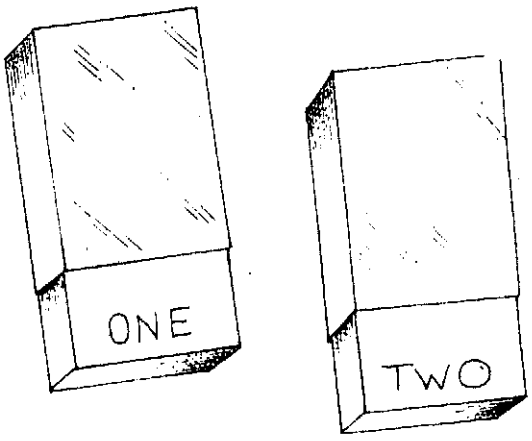
- A black marker pen
- Ten self-sticking, blank price-tag labels





How to make

1. Paste a strip of silver paper around each lid of the match-boxes. Be careful to leave both ends open.
2. Stick a label or piece of white paper on the top of each of these lids and write numbers 1 to 10.
3. Paste a piece of white paper inside each tray so that the red *bindis* show up better.
4. Stick the *bindis* inside the trays as shown.
5. On the back of each tray, write the numbers 1 to 10 in words.



How to use

1. One by one each tray is pushed into its respective lid. Each lid is then shown to the children to point out the number labels thus, "This is number 1. This is number 2," and so forth.
2. The children can be asked to put up as many fingers as the number that is pointed out.
3. Ask the children to open their matchboxes by pushing out the trays to help in saying out the number of *bindis* stuck on the trays. They will say, "1, I see 1 red *bindi.* 2, I see 2 red *bindis,*" and so on.
4. Mix up the trays on the table or on the floor. Ask the children to arrange them 1 to 10 in ascending order and also 10 to 1 in descending order.
5. Arrange the trays in the numerical order of 1 to 10. Mix up the lids. Ask a child to place the lid numbered 1 against the tray with 1 *bindi.* The same is done with each successive number.
6. Mix up all the lids and trays. Ask each child to provide the lid numbered 1 for the tray numbered 1, and so on till the end.
7. Point out the name for each number written on the bottom of the tray. Arrange in order according to the names. The child can be asked to match the names with the numbers on the lids.

Note: Children are encouraged to find more ways of matching and arranging numbers. Silver paper is used because it is both attractive as well as durable.

RED-DOT NUMBER RODS

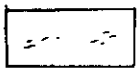
- **Recognising and Comparing Numbers**
- **Addition**
- **Subtraction**
- **Simple Multiplication**

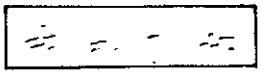
You will need

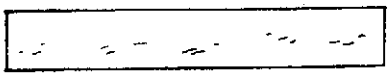
- Thin strips of wood like the ones used by electricians when laying wires in a house
- Sandpaper
- Fifty-five large, self-sticking red *bindis*, of equal size and same colour
- A saw

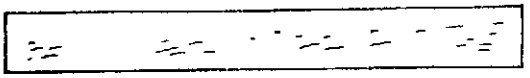
How to make

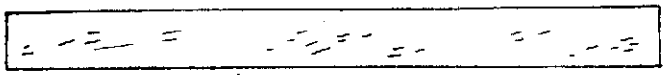
1. Mark 3 cm long sections on a strip and with the help of the saw cut into 10 pieces, each 3 cm long. Saw the other strips so that you will have a set of 25 pieces with the following lengths and number:

   3 cm  10 pieces

   6 cm  5 pieces

   9 cm  3 pieces

   12 cm  2 pieces

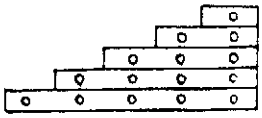
   15 cm  2 pieces

   18, 21, 24 cm of 1 piece each.

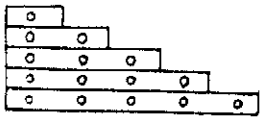
2. Rub sandpaper over any rough surfaces. Varnish or paint, if necessary, to prevent any danger of getting hurt by splinters.
3. Stick a *bindi* exactly in the centre of each 3 cm segment on all the strips of wood.
4. On the back of each strip write the number corresponding to the number of dots.

How to use

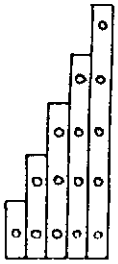
1. Arrange in stair-step order.



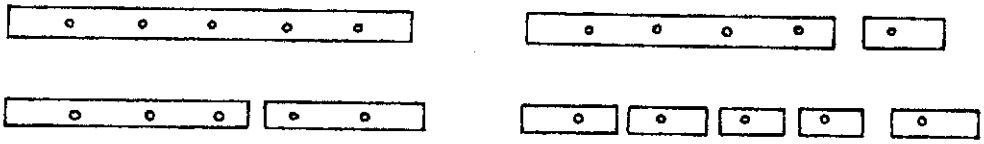
2. Reverse it.



3. Arrange in high-rise order.



4. Ask children to give you 5 dots in 4 different ways (they should be encouraged to discover the ways themselves).

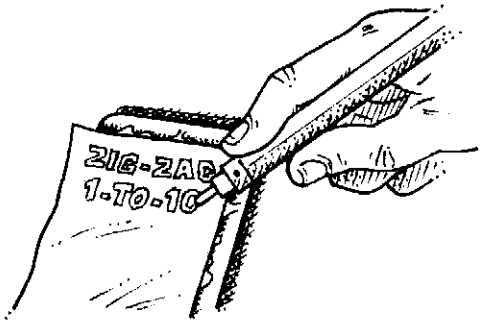


5. Multiplication
   "How many 2s make 8?"
   "How many 4s make 8?"
   "How many 3s make 9?"

ZIG-ZAG 1 TO 10

- **Identifying Numbers 1 to 10**
- **Self-Teaching Display of Numbers in Order from 1 to 10**
- **Numbers in English and Local Language**

You will need



- Half a pack of playing cards... Ace to 10 of a black suite (clubs or spades) and Ace to 10 of a red suite (hearts or diamonds)
- Small sticky labels... or coloured paper and Dendrite gum
- A fine-point permanent black marking pen
- ¾ or 1 inch wide brown tape
- Scissors
- Paper and Dendrite gum to cover the top card

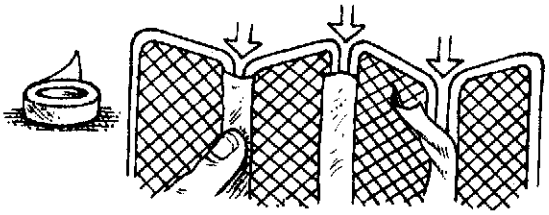
How to make

1. Arrange the cards face-up in a row: red 1, black 1, red 2, black 2, red 3, black 3... up to 10.
2. Turn them over (face-down).
3. Cut a strip of brown tape the length of a card and stick the back of the red 1 to the back of the black 1, next the black 1 to the red 2, the red 2 to the back of the black 3, etc. till all the cards are connected in a long row.

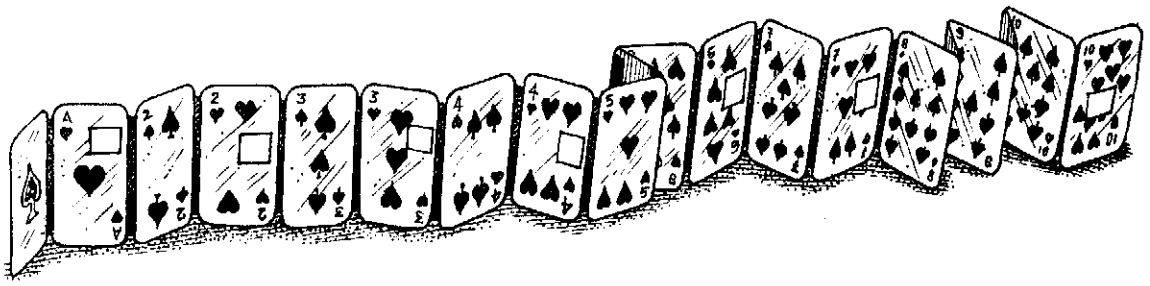
Note: There should be just a slight 'crack' of space between the cards. If they are too close up against each other when you tape them, you will not be able to bend the whole line into an 'accordion' or 'ZIG-ZAG'.

4. Paste a paper on the picture-side of the top 1-card and write "**Zig-Zag 1 to 10**".
5. To show the local number along with the English one that is printed on the cards, write the numbers 1 to 10 in the local language on small stickers and fix them one on each card.
6. Fold the set of cards into a ZIG-ZAG 'book'.

How to use



1. Show the cover and read the title: "Zig-Zag 1 to 10".
2. Open the 'book' to show the zig-zag and close it again.
3. Open page 1. See the red 1 and the black 1. Point to the two ways to write the number 1... in English and in the local language.
4. Open page 2. See and count the two red patterns and the 2 black patterns. Point to the two ways to write 2.
5. At the initial rate of, say, 2-numbers-a-day, continue till you reach 10.
6. Open the book. Lay it flat out so the children can see and count all the numbers.
7. Carefully fold it up and keep it on a shelf where individual or pairs of children can 'read' it.



TOSS AND COUNT

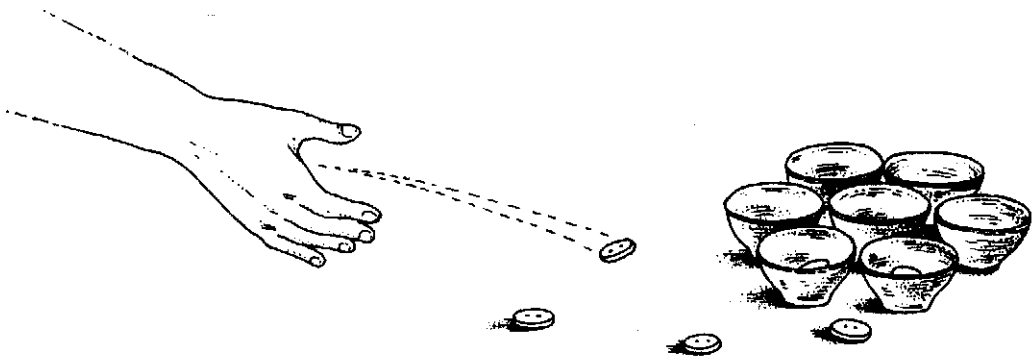
- **Simple Adding**
- **Keeping Score**
- **Taking Turns**
- **Eye-Hand Control**

You will need

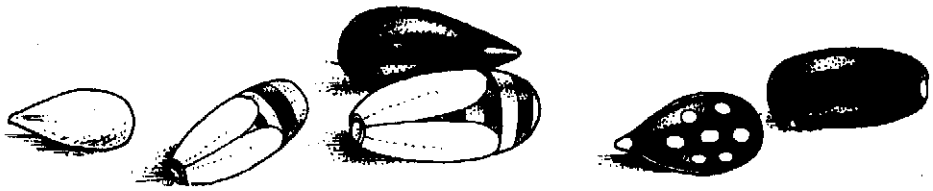
- Seven ice-cream containers or clay tea-cups
- Seven large buttons or seeds

How to make and use

1. Arrange the containers on the floor in a floral pattern.
2. Paint or put some coloured paper in the container placed in the centre to make it look different from the others.
3. Turn by turn, each child stands at a fixed position and tosses 7 buttons towards the floral pattern. Points can be awarded. Two points for tossing a button in the centre cup, 1 point for each 'petal' cup; and zero for any that land on the floor.

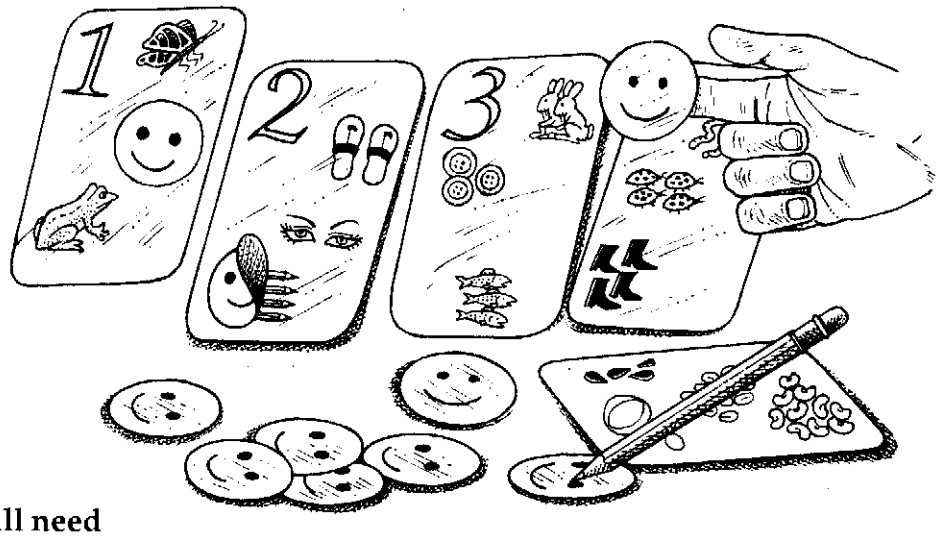


Note: If you can collect big, light-coloured seeds, you could mark each one with a black pen, so that it looks like a honey-bee going in search of pollen or like a lady-bug out on a stroll.



1 TO 10 SMILING FACE COVER-CARDS

• **Identification of Numerals 1 to 10**



You will need

- 10 pieces of card... all cut to the same size

Note: Round the corners, so the cards will last longer

- 10 circles cut from card

How to make

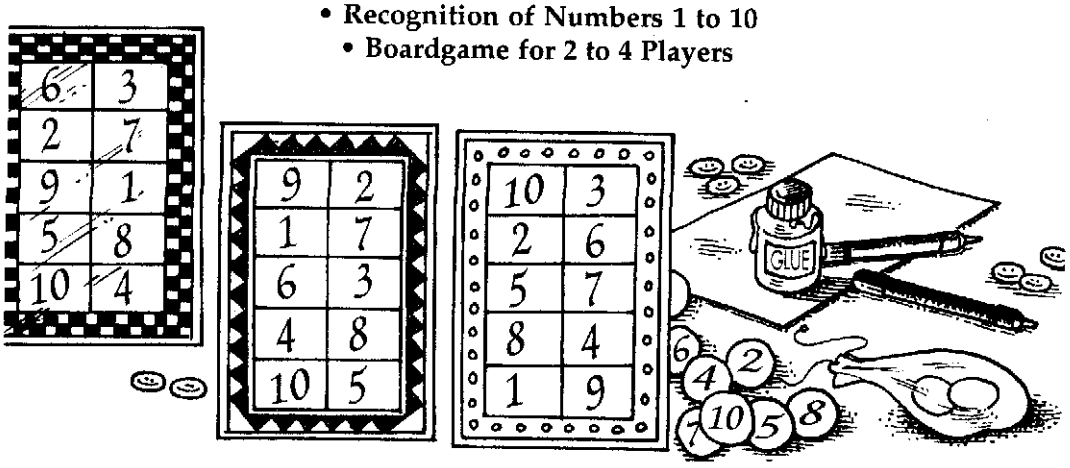
1. Write the numerals from 1 to 10 at the top left corner of each card.
2. Draw three pictures on each card... or paste pictures cut out from old books or magazines.
3. Two of the pictures should illustrate the number on the card.
4. The other picture will have more than that number... or less.
5. For instance, on the 4-card, draw 4 leaves, 4 buttons and only 3 stars.
6. Draw a smiling face on each circle.

How to use

1. Arrange the cards in order from 1 to 10.
2. Give a smiling face to a child.
3. Ask the child to cover the wrong picture with a smiling face so that the card is 'correct'.
4. For instance, on the 4-card, the child will cover the 3 stars with a smiling face so that the card is correct and 'happy'.
5. Continue till all cards are wearing smiling faces.

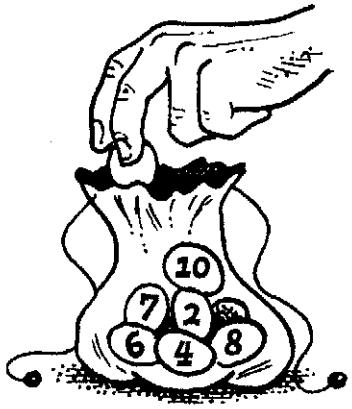
1 TO 10 BINGO

- **Recognition of Numbers 1 to 10**
- **Boardgame for 2 to 4 Players**



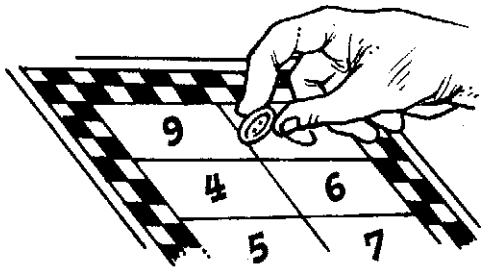
You will need

- 4 gameboards about 6 x 8 inches. These can be made from covers of old lab notebooks or hard-cover exercise books
- White or light-coloured paper to cover each board
- Black and red permanent marking pens
- Glue
- 10 circles of stiff card about the size of a Rs. 2 coin
- A small cloth bag with a drawstring
- 40 tamarind seeds, small stones or buttons to use as markers



How to make

1. Cover the boards with 4 different arrangements of the numbers 1 to 10... so that no two boards are the same, but all have the numbers 1 to 10. See the illustration.
2. Write the numbers 1 to 10 on the circle-cards.
3. Put all of the circle-cards in the cloth bag.



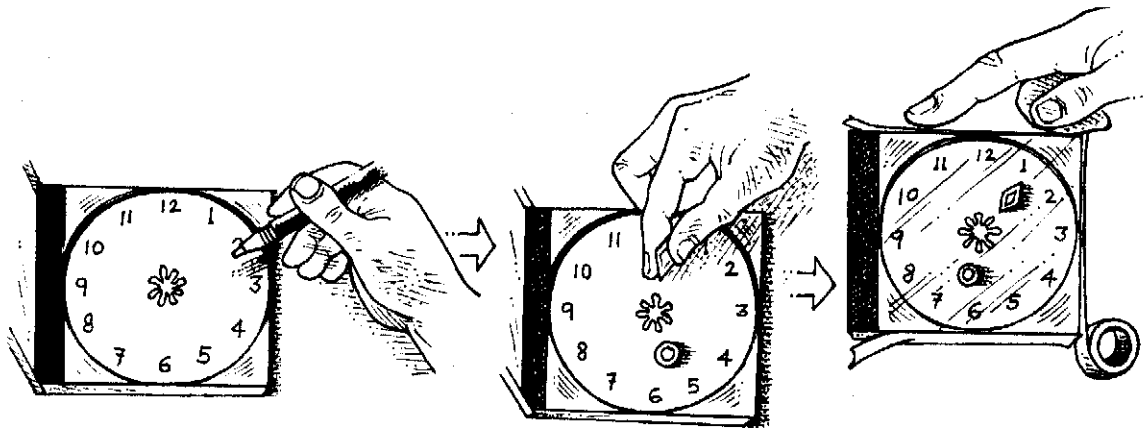
How to use

1. Give each player one gameboard and 10 markers.
2. Pass the bag to the first player.

3. The first player takes out one circle-card **without looking**. He/she puts it on the table so all can see the number on it.
4. He takes one of his markers and covers that number on his gameboard.
5. He puts the circle-card back in the bag and passes it to the next player.
6. If a player picks up a coin for a number that he has already covered on his board, he misses that turn.
7. **Winner** is the first player to cover all 10 numbers on his/her board.

CD MATH

• Identification of Numerals 1 to 12
• Addition
• Subtraction
• Multiplication



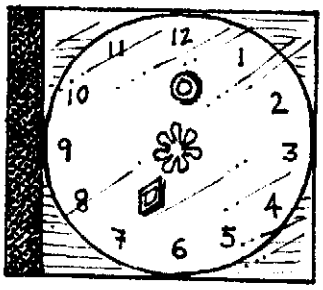
You will need

- 2 empty plastic CD covers with a clear plastic top and a black base
- A white marking pencil... the type used to mark film negatives or to write on glass
- 3 pieces of the type of glass pieces used in Gujarati decorative stitching... 1 round and 2 diamond-shaped
- A bit of cello-tape

How to make

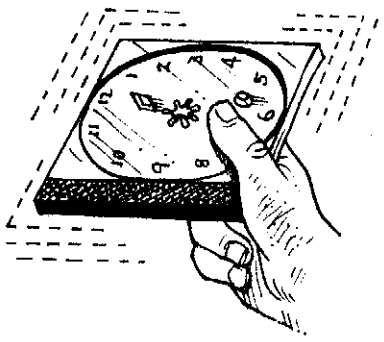
BOX NO. 1

1. Using the white marking pencil, write the numerals 1 to 12 on the black background of one CD cover so that it looks like a clock-face.
2. Put a diamond-shaped piece of Gujarati glass inside (shiny side up).
3. Close the CD box with some cello-tape on the three open sides... so the glass does not fall out.



BOX NO. 2

1. Again, write the numerals 1 to 12.
2. Put one round glass piece and one diamond piece inside.
3. Close the CD box with cello-tape on the three open sides.



How to use

BOX NO. 1

1. Child to gently shake it... (it makes a pleasant sound) and tell the name of the numeral the glass piece stops on... or the one that it is closest to.
2. Children take turns doing this over and over.

BOX NO. 2

1. Gently shake it.
2. Tell which number is the largest.
3. Tell which number is the smallest.
4. Add the two numbers the glass pieces stop on.
5. Subtract them.
6. Multiply them.

PYRAMID ADDING GAME

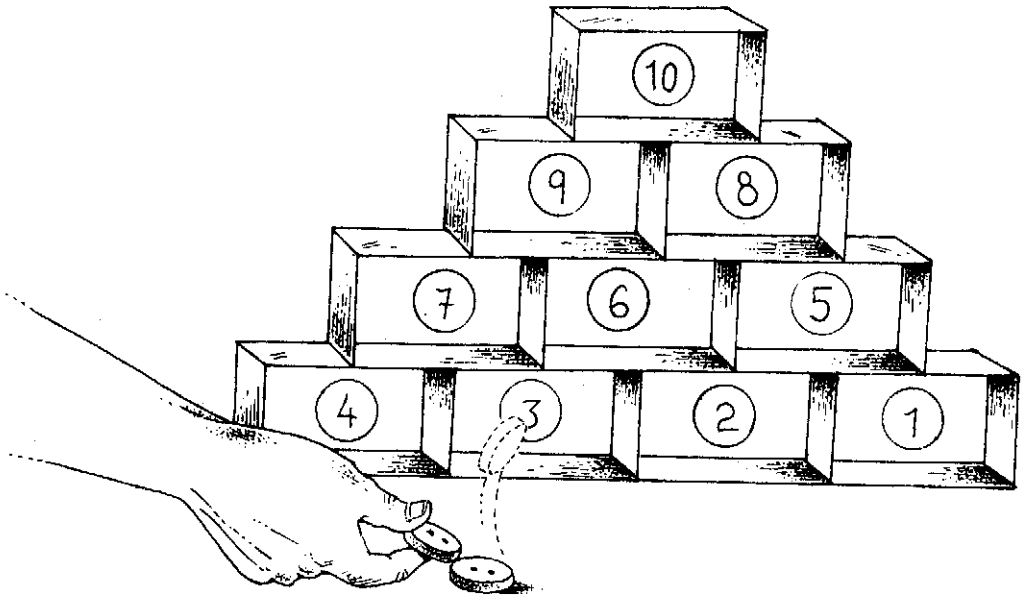
• Adding up to 25 or 50
• Keeping Score
• Finger-Muscle Development

You will need

- The inside trays of 10 large matchboxes
- Fevicol or a stapler
- Numbers 1 to 10 cut out of an old calendar
- Plastic buttons or round Ludo counters

How to make

1. Paste or write a number inside each tray.
2. Stick or staple trays in a pyramid as shown below.



How to play

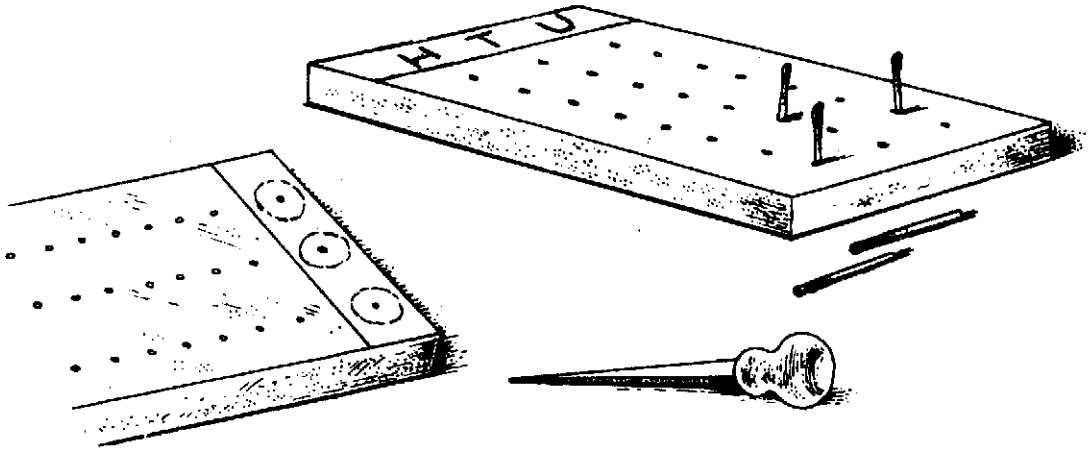
1. Press the edge of a Ludo counter or a button against the edge of another counter on button lying on the floor/table. The second counter or button will 'flip' up towards the pyramid. With luck (and skill) it will land inside any one of the trays. The player earns the number of points indicated by the number pasted or written in the tray. See who succeeds in reaching the total of 25 or 50 first.

RUBBER CALCULATOR OR SCORE-KEEPER

• Counting 1 to 100
• Keeping Score
• Hundreds/Tens/Units

You will need

- A piece of rubber at least 2 cm thick or soles of old rubber slippers (washed, of course)
- A sharp knife or blade
- A stencil, the size of the given pattern (old x-ray plates make marvellous stencils, so do the plastic covers of ration cards)
- A pencil-compass and an ice-pick or *batoli* (cobbler's awl)
- A thick pad of old newspapers
- Some used matchsticks
- Sticky labels or strips of paper and Fevicol (for writing H T U or making coloured circles)

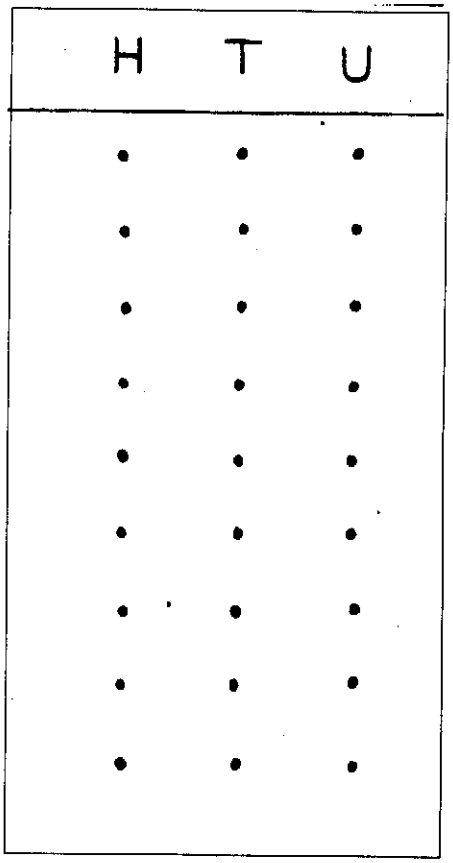


Left: coloured circles with holes in the centres for the winning 10. *Right*: total score of 132.

How to make

1. Trace out the stencil onto the rubber piece.
2. Carefully measure and mark 3 rows of 9 dots. Leave space at the top for the label.
3. Cut the piece of rubber into a rectangular shape. While cutting, the rubber must be placed on a pad of newspapers so that the knife edge does not get damaged.
4. With the help of a compass point, deeply puncture holes into the marked dots.

5. Use the ice-pick or *batoli* to make the holes bigger so that the matchstick markers can be fixed easily into them.
6. Label the top H T U.



Pattern for rubber calculator (actual size)

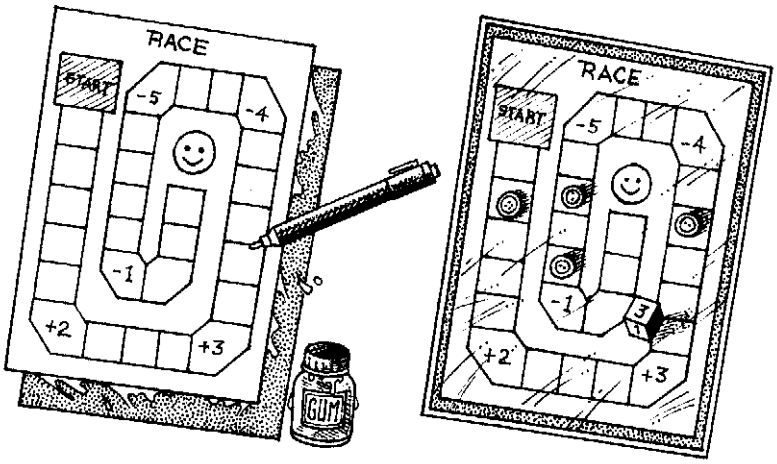
Courtesy: Arvind Gupta

BUTTON RACE

- **Practice with Dots and Numbers 1 to 6**
- **Simple Adding (going forward) and Subtracting (going backward)**
- **4 to 6 Children can Play at a Time**

You will need

- An old lab-book cover or half of an old Ludo board or stiff card or piece-board
- A piece of chart paper
- A black marking pen
- Glue
- 4 to 6 buttons, big seeds or small stones
- One dice... as large as possible, and clearly marked so children can easily see the number thrown



How to make

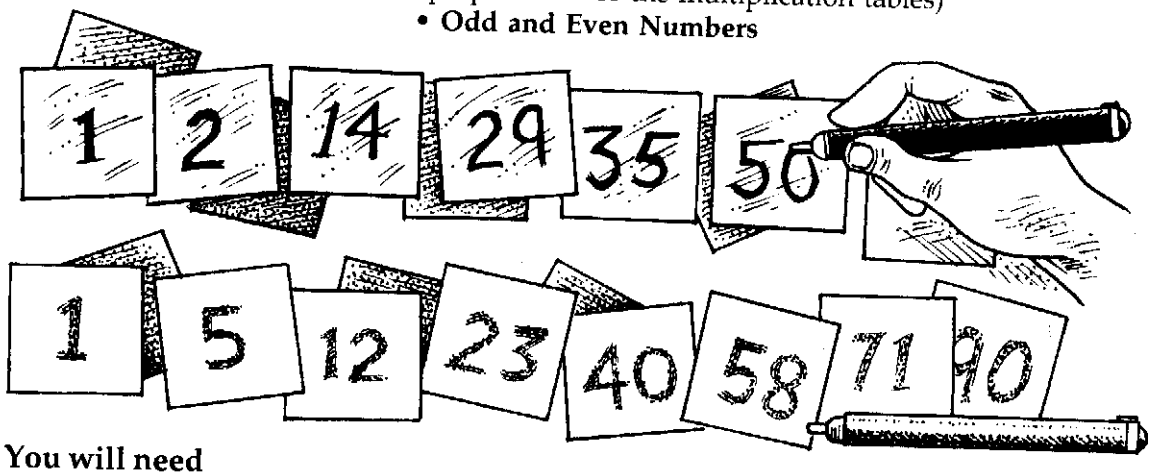
1. Copy the above drawing on a piece of chart paper.
2. Paste it on a piece of stiff board.
3. Cover with a sheet of clear plastic (if available).

How to play

1. Each child should place a button or marker in the START-box.
2. They take turns rolling a dice and moving their markers.
3. If they land on a '+' square, they move forward the number of spaces marked on the square.
4. If they land on a '–' square, they must go back that number of spaces.
5. At the end, each child must roll the exact number needed to land on the Smiling Face.
6. The winner is the first player to land on the Smiling Face.

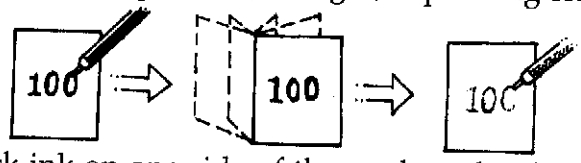
TWO-COLOUR NUMBERS 1 TO 100

• **Counting by 2s, 3s, 4s, 5s, etc.**
(This is a preparation for the multiplication tables)
• **Odd and Even Numbers**



You will need

- 100 cards cut into 3 inch squares for small-group work (or larger, depending on the size of the group)
- Black and red marking pens



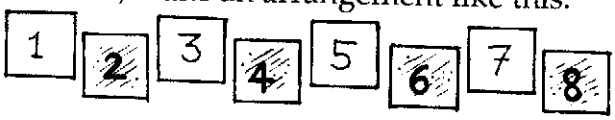
How to make

1. Write the numbers 1 to 100 with black ink on one side of the cards and red or green ink on the other side.

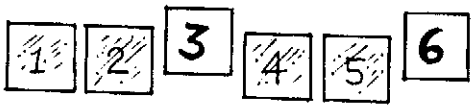
How to use

1. For practising odd and even numbers, make an arrangement like this:

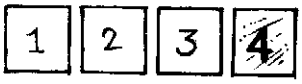
   1 **2** 3 **4** 5 **6** 7 **8** 9 etc.

   For counting by 3s:
   1 2 **3** 4 5 **6** 7 8 **9** 10 11 **12** etc.

   For counting by 4s:
   1 2 3 **4** 5 6 7 **8** 9 10 11 **12** 13 14 15 **16** etc.

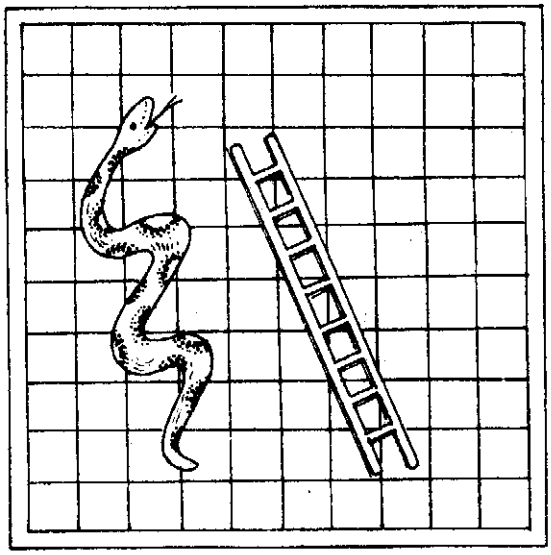
   

   Continue for all the "Tables" of 5, 6, 7, 8, 9 and 10.

Note: If the group of children is large, you can string a rope across the front of the room and display the cards by hanging them with clothes-clips.

GIANT SNAKES AND LADDERS

- **Learning Numbers 1 to 100**
- **'Reading' Dice**
- **Taking Turns**

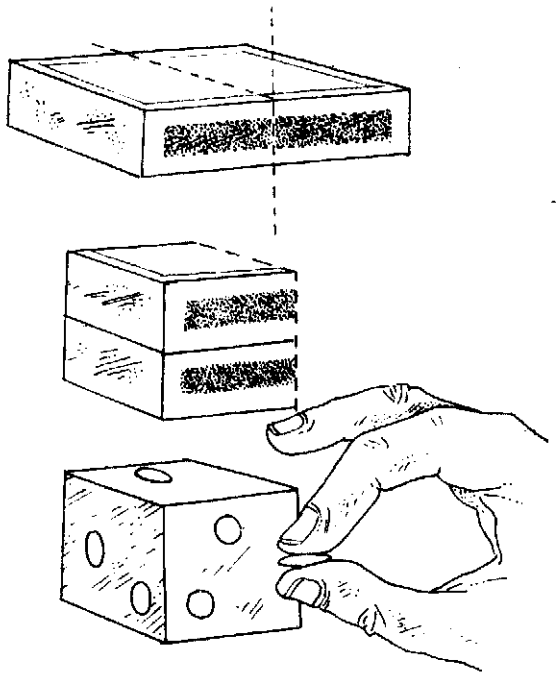


You will need

- Cemented floor surface or a sheet of rubber cloth or thick plastic or an old white bedsheet or a square of woven palm-leaf with several coats of white paint for the base
- Markers in 6 colours for 6 players. You could paint soft-drink bottle caps

How to make

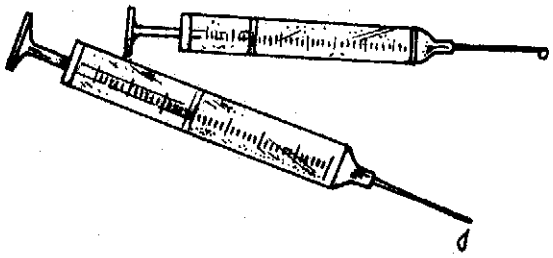
1. One large dice can be made by squaring off 2 matchboxes and pasting them together to form a cube. Wrap several layers of paper around it to make it secure. Add dots by using self-sticking *bindis*. To make an interesting sound, put a few grains of *dal* (lentils) inside the boxes before sealing them.



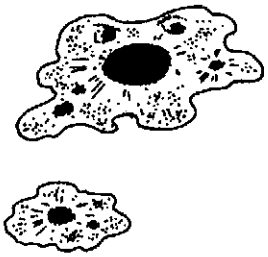
Variation

You could make a health-message version of this game by using germs instead of snakes and injections or capsule strips or tonics and spoons in place of ladders.

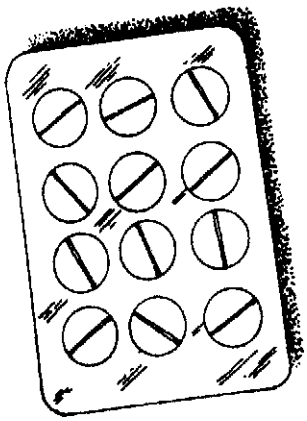
Injections



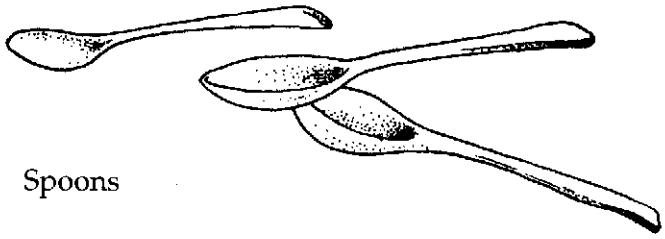
Germs



Capsule Strip



Tonics



Spoons

VISUAL AIDS FOR COUNTING BY 2S, 4S AND 5S

• **Foundations for Multiplication and Division**

Counting by 2s

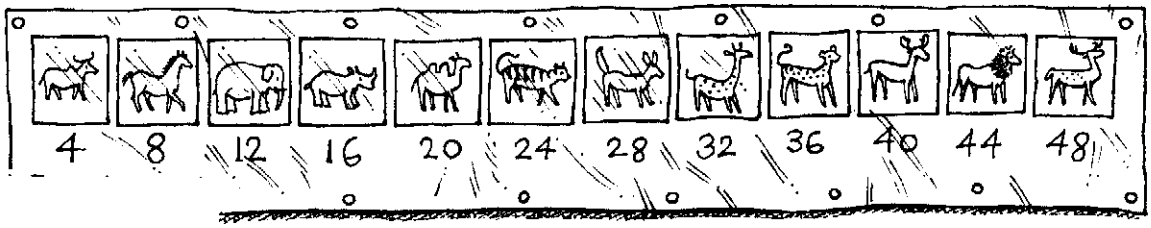
You will need

- Pairs of socks
- A clothes line strung across the room
- Clothes-pins

How to use

1. Explain that we call two of something a 'pair'... a pair of socks, a pair of hair-clips, a pair of shoes, a pair of eyes, ears, etc.
2. Have 12 children each pin up a pair of socks on the line. As they are pinned up, say "2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24". Then count them from 1 to 24. Repeat counting by 2s.
3. Ask the children how many clips are needed for 3 pair of socks, for 8 pair, 5 pair, etc. Ask how many pair of socks make 8, 24, etc.

Counting by 4s



You will need

- 12 pictures of animals... each showing all 4 legs
- A long strip of chart paper on which they can be pasted in a line

How to use

1. Put up the strip-chart so all the children can see it, or stretch it out on the floor.
2. Count the legs on the 1st animal and, with a black marker, write a big number 4 below it.

3. Count the legs on the 2nd animal, then go back to the first one (counting aloud 1, 2, 3, 4) and continue with 5, 6, 7, 8 while counting the legs of the 2nd animal. Write a big number 8 below it.
4. Count the number of legs of the 3rd animal. Go back to the 1st animal, counting 1, 2, 3, 4 and the 2nd animal, counting 5, 6, 7, 8 and continue with 9, 10, 11, 12. Then write a big number 12 below the 3rd animal.
5. Continue in this way till you write a big 48 below the 12th animal.

Counting by 5s

You will need

- A long strip of chart paper, in fact, several strips pasted together to make a really long strip

How to use

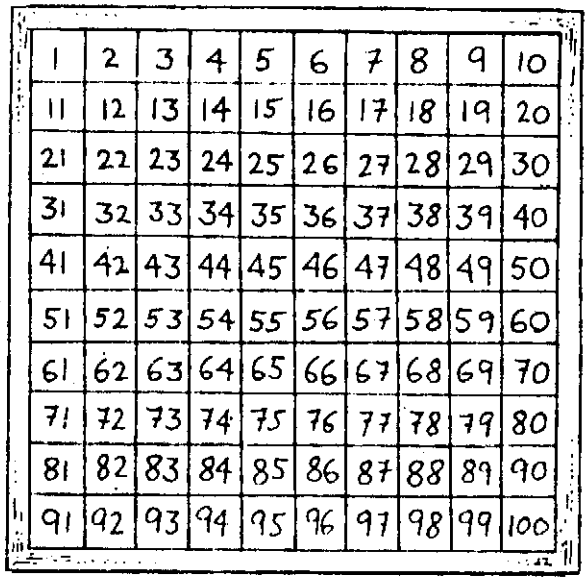
1. One-by-one, 10 or 12 children should put their left hand on the strip and draw around it so that all 5 fingers show. Colour the hand. Count the fingers and write a big 5 below the first hand. Below the 2nd hand, after counting all the fingers, write a 10, below the 3rd hand write 15, etc.
2. Introduce concept of Division: "How many hands do we need for 15 fingers?" "For 25?" etc.

A HUNDRED BOARD

- **Numbers 1 to 100**
- **Dodging**
- **Odd/Even**
- **Adding/Subtracting**
- **Multiplication Tables**

You will need

- A piece of very stiff card at least 28 cm by 28 cm square. Leaving a 1.2 cm margin all round, draw a 25 cm square grid. Write the numbers 1 to 100 horizontally on the front side and vertically on the flip side. Or else you could make two separate boards.

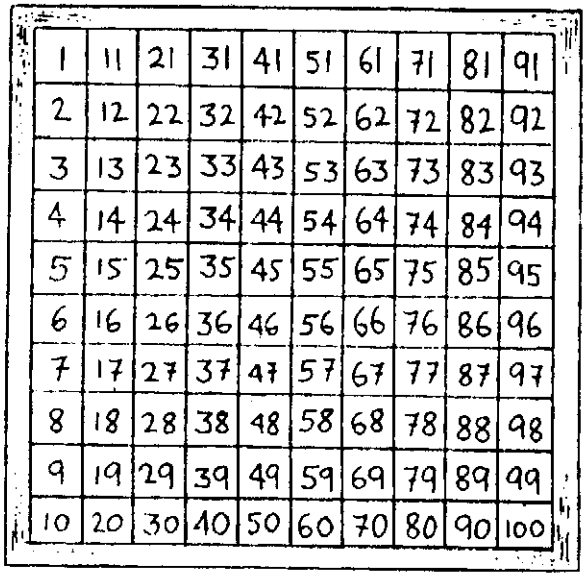


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

How to use

DODGING

- Keep the Hundred Board in a clear cellophane bag along with 5 bottle caps or brightly coloured buttons, each large enough to completely cover the number in a square. Staple the bag shut. Shake it and quickly cover the squares the buttons lie closest to. Ask the children which numbers are covered. The caps/buttons can easily be pushed aside to check if the answer is correct. Shake again.



1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

ODD NUMBERS/EVEN NUMBERS

1. Cover the odd numbers from 1 to 99 with markers (buttons, bottle caps, etc.). You will need 50 of these. They must be large enough to cover the numbers. Call out the numbers (1, 3, 5, 7...) as you cover them. When all are covered, try to recall them without peeping under the markers.
2. Look at the numbers that are not covered. Help the children to observe that all the uncovered numbers end with 2, 4, 6, 8 or 0. Say these numbers in the right order as a child points to them. Once the children are ready for further information, you can tell them that these are called even numbers.
3. At the next sitting, cover the even numbers with markers. Call out the numbers (2, 4, 6...) before covering them one by one. When all are covered, ask the children to recall and say the numbers without looking under the markers.
4. Help the children to notice the numbers that are not covered. These will be or end with 1, 3, 5, 7 or 9. Repeat these numbers in order while someone points to them. Tell the children that these numbers are called odd numbers.
5. Let the children count the even and the odd numbers between 1 and 100 and ask them how many are odd and how many are even.

AS AN ADDITION/SUBTRACTION LINE

To add 3 to a number, point to a number, say, 7. Then move forward 3 squares with your fingers, i.e., 8, 9, 10. Similarly, to subtract 3 from a number, point to the number 7. Then move backwards 3 squares with your fingers, i.e., 6, 5, 4. The answer will be 4.

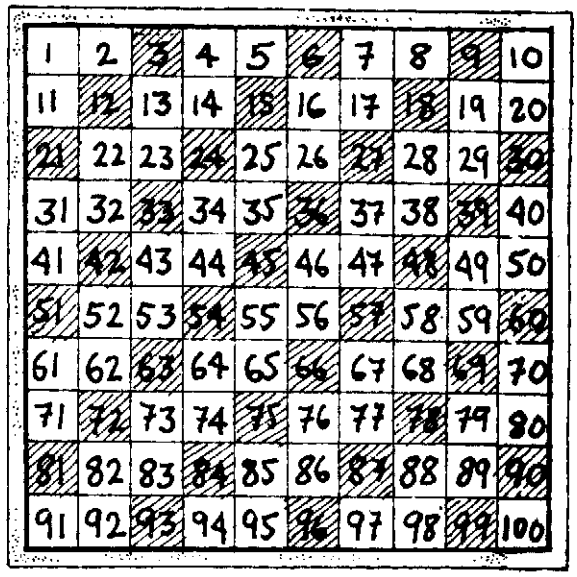
SPILL THE BEANS

Children take turns in spilling 2, 3, 4 or 5 beans or buttons or stones onto the Hundred Board. Each writes down and adds his 2, 3, 4 or 5 addends. The highest sum for each round wins 1 point. Two or more children may play the game and the one to score 5 points first is the winner. Small plastic boxes may be used as 'shakers' for the pieces. They also serve as convenient storage containers for the pieces.

PATTERNS THROUGH TABLES

This is a beautiful way to visualise the patterns made by multiplication tables and becomes more so when we use colourful buttons, plastic flowers, a collection of toothpaste caps, Ludo counters, etc. The figure below shows the pattern made when we count by 3. Let the children count aloud along with you and ask them to mark every third number with one of the above markers. Soon their pleasure will

know no bounds on seeing a pattern forming. On reaching 100, remove the markers one by one and call out each number as it is uncovered. Tell the children that this is called 'counting by 3' and it is same as the multiplication table for the number 3. They may copy this pattern in their notebooks and colour all the third squares falling between 1 and 100. Later, the same can be done with tables ranging from 2 to 10.



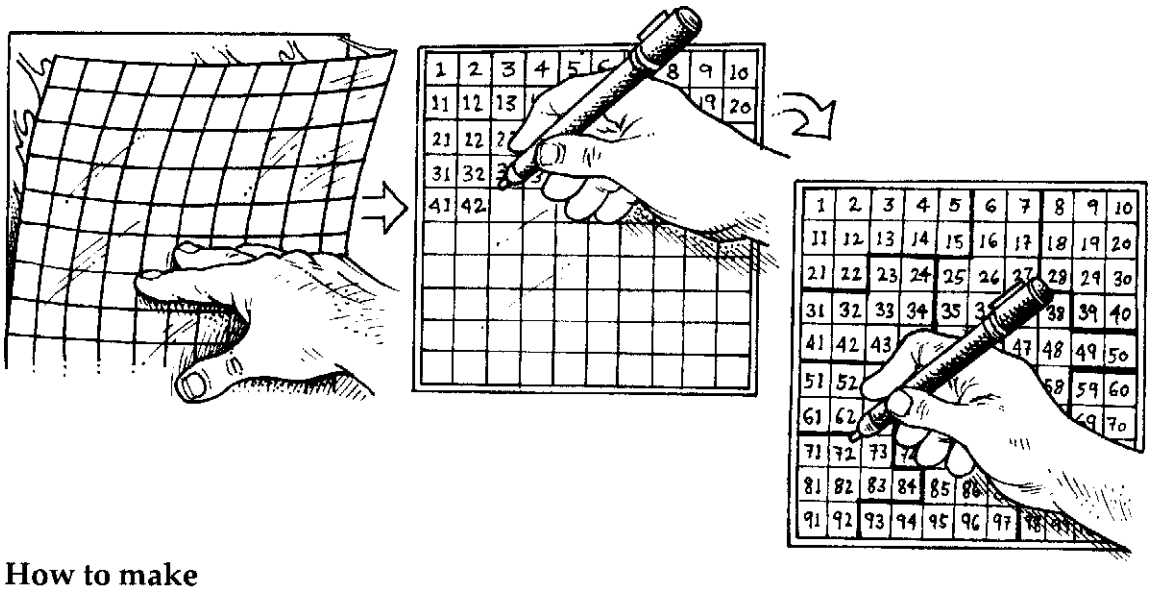
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

100-BOARD JIGSAW PUZZLES

• Ordinal Arrangement of Numbers 1 to 100

You will need

- Several cards about 6 inches square
- Scale and pencil
- Black marking pen
- Wide-nibbed coloured pens or paint and brush
- Scissors
- Glue

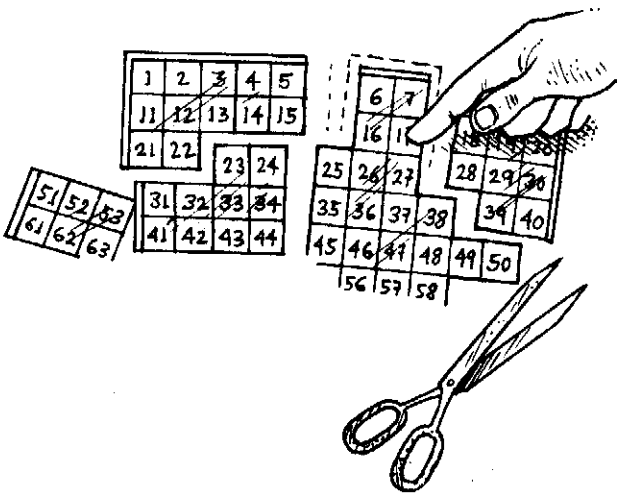


How to make

1. With pencil and scale, draw a 10-by-10 grid on each card, or simply paste a sheet of squared paper on each card.
2. With a black pen, write the numbers 1 to 100 horizontally or vertically.
3. With coloured pens or brush, mark out a pattern of jigsaw puzzle pieces. Be sure that the colour-line is wide enough so that, when the pieces are cut, the colour shows on all sides of all the pieces. This makes it a little easier to put the puzzle together and also keeps the different puzzles from getting mixed up.
4. Cut the 100 boards into the marked pieces.

How to use

1. Show the children an assembled puzzle.
2. Mix up the pieces.
3. Ask some children to come forward and put the puzzle back together.
4. Then give them the mixed-up pieces of two puzzles... three puzzles, etc.
5. Also useful for individual practice with children who have difficulty with number-order.

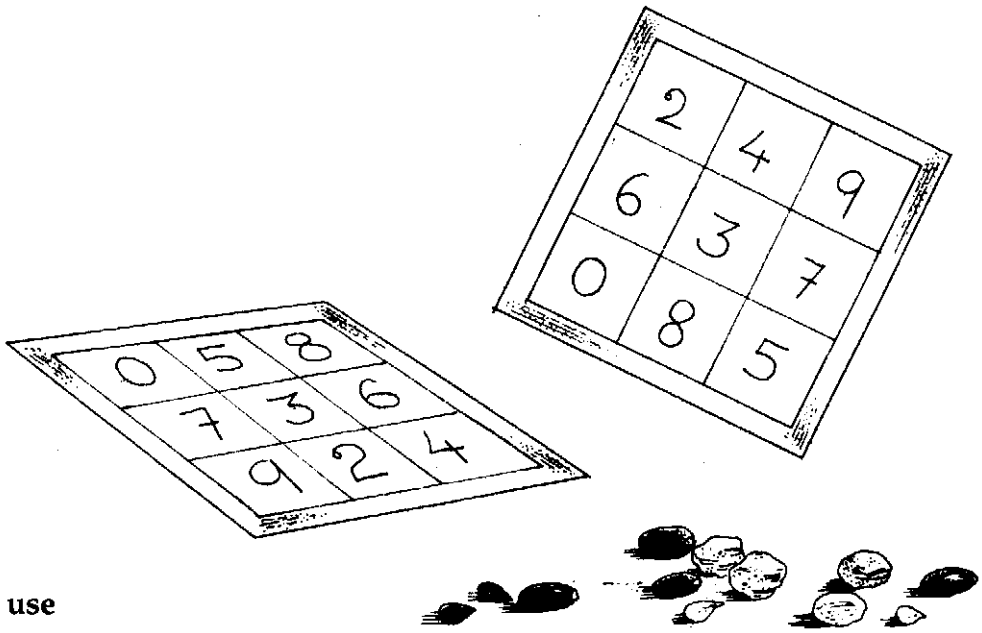


MATH PRACTICE GRID GAMES

- **Adding 3 Numbers**
- **Multiplying 2 Numbers**

You will need

- Grid squares marked on a card or paper or slate or on the ground with a stick or a chalk or charcoal. Use the digits from 0 to 9 except for 1
- Small stones, seeds, etc. can be used as markers



How to use

ADDITION

1. Toss 2 or 3 markers on the grid and note the numbers on which the markers fall. Add these numbers. A player with the highest score or the first player to reach 50 or 100 is declared the winner.

MULTIPLICATION

1. Toss 2 markers onto the grid. Multiply the numbers on which the markers fall. The player with the highest total or the first player to reach 100 is the winner.

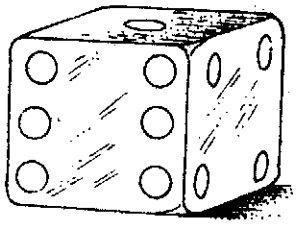
Note: You can give each child or a group of 2 or 3 children a rubber calculator for maintaining the score (*see* page 38).

ADDITION DICE

• Adding Practice up to 50 or 100
• Keeping Score
• Taking Turns

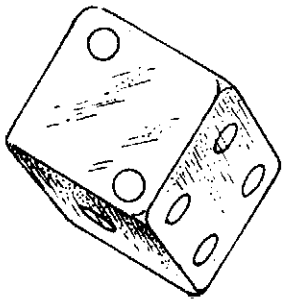
You will need

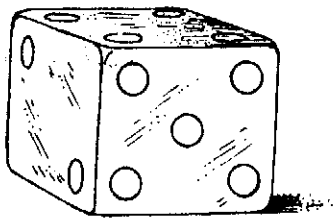
- Three dice
- A storage box or an empty film container or a matchbox
- A slate or paper for recording the score



How to play

1. Throw all the 3 dice.
2. Add the dots on the top surfaces of all the 3 dice.
3. The winner is the first player to score a grand total of 50 or 100.



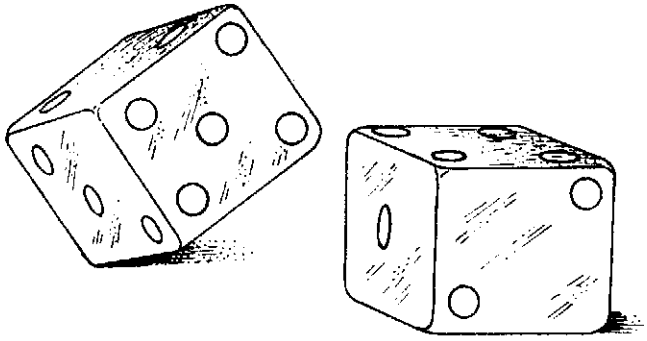


'TABLES' DICE

• Quick Addition
• Tables Practice up to 12

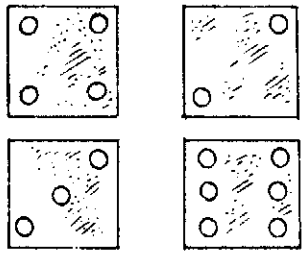
You will need

- Two dice
- One storage box
- A slate or paper for keeping score



How to play

1. Both the dice are tossed by a player twice. The total number obtained by counting the dots on the top surface of each dice on every toss become the factors for multiplying and the player must give the final answer correctly.



= 6
= 9
} 6 X 9 = 54

2. After each round, the player with the highest answer gets 1 point. The winner is the player to score 10 points first. This game is for playing in pairs or in small groups.

Note: *See* page 38 for making individual rubber calculators for keeping or recording the scores.

NEW LIFE FOR OLD CALENDARS

• Number Line
• Odd-Even
• Adding/Subtracting Patterns

Numerical Order

- Cut number-squares separately. Mix them up. Ask the children to rearrange them in order.

Odd-Even

- Encircle the odd numbers in red and the even numbers in blue.

Counting by 2s, 3s, 4s, etc.

- Circle in blue colour all the numbers you would use when counting by 2, in green for counting by 3, in black for 4, in red for 5. Notice the numbers that get encircled more than once. Discuss why. Point out numbers that never get encircled: 11, 13, 17.

Number Lines

- Make number lines by cutting rows horizontally and pasting in a long, straight line from 1 to 30 or 31.

Addition and Subtraction Practice

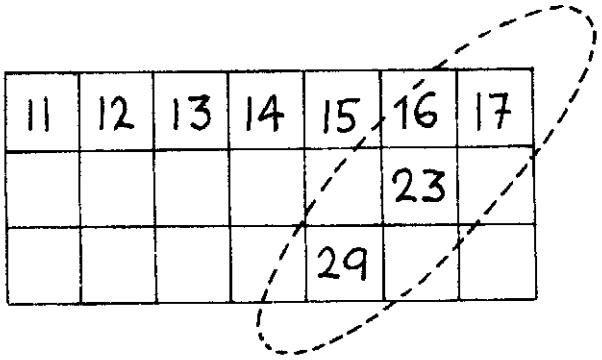
- The number below a calendar number is always plus 7 and the number above is minus 7. (If the grid had 8 numbers, then the number below would be plus 8 and the number above would be minus 8. Try with grids of 5/10/12 etc.).

11 + 7 = 18

11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

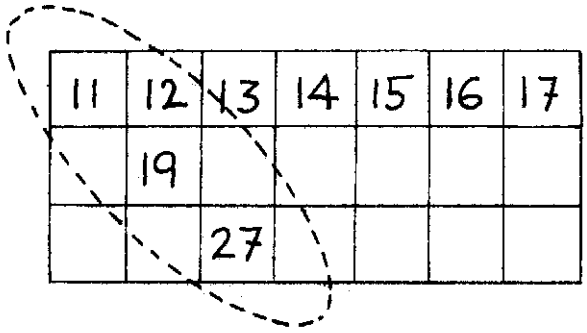
31 – 7 = 24

- Take a left diagonal. You will find the numbers are obtained by adding or subtracting 6.



17 + 6 = 23
29 – 6 = 23
23 – 6 = 17

- When a right diagonal is taken, the number below increases by 8 and the number above decreases by 8.

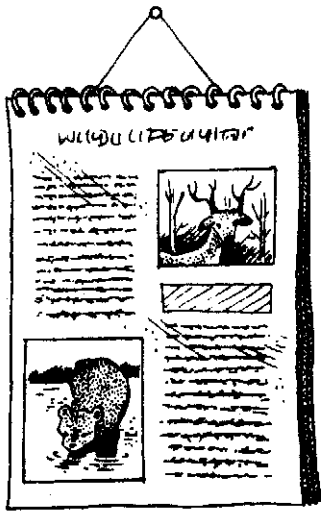


19 + 8 = 27
19 – 8 = 11
27 – 8 = 19

Months and Seasons

- Tear out the calendar into its 12 months. Mix up the months. Ask the children to rearrange them in order.
- Make a list of the months that have 31, 30, 28 or 29 days.
- Paste the months on 5 large sheets of newspaper and label the seasons:

  Winter : December, January, first half of February
  Spring : Second half of February, March
  Summer : April, May, June
  Monsoon : July, August, September
  Autumn : October, November



Wall Charts

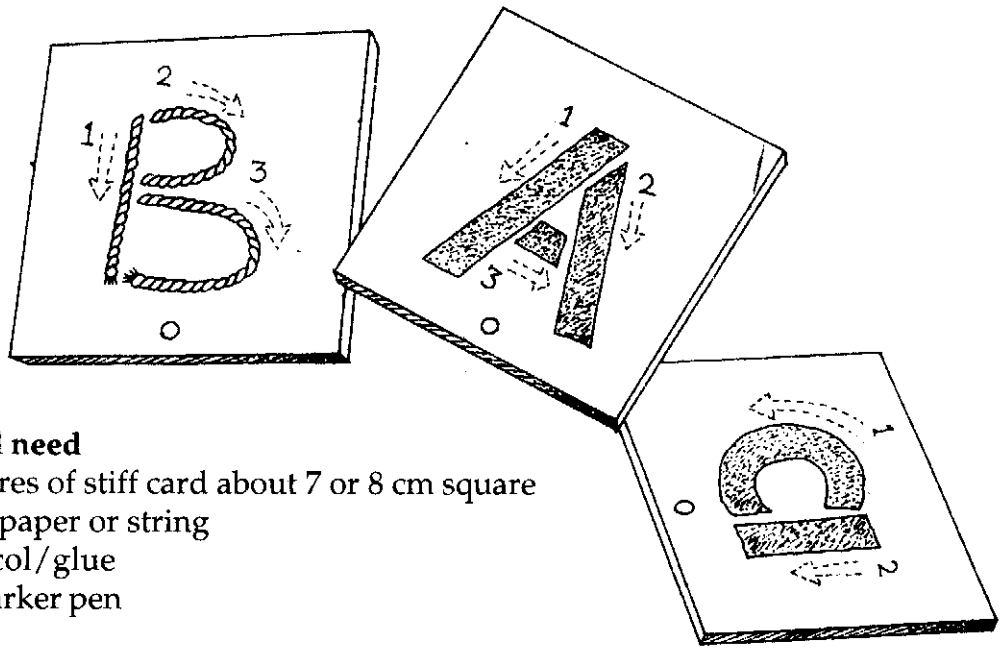
Wall calendars that are blank on the flip side can be used for making charts for the classroom.

Section II

VOCABULARY DEVELOPMENT

FEEL-AND-WRITE ALPHABETS

- **Letter Recognition**
- **Early Letter-Writing**



You will need

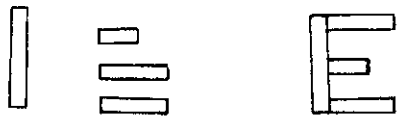
- Squares of stiff card about 7 or 8 cm square
- Sandpaper or string
- Fevicol/glue
- A marker pen

How to make

1. Using a pencil, write a letter of the alphabet on each card.

   Letters with rope:

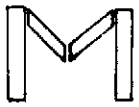
2. Cut a small piece of rope for each of the writing strokes needed to form the letter. For example, for the letter 'E' take 1 long piece, 1 short piece and 2 medium pieces of rope.



3. Spread quick-drying glue over the pencil lines on the card (one line at a time) and immediately press the piece of rope in place.

Letters with sandpaper:

4. On the smooth reverse side of sandpaper draw each letter. Cut them out one at a time.
5. Then cut each letter into sections according to the strokes used in writing it. For example, the letter 'M' can be cut thus:



6. Spread quick-drying glue over the pencil lines on the card and immediately press the pieces in place.
7. To complete the cards, use black ink or a marker pen to mark and number the direction of the arrows. Mark a small dot at the centre below each alphabet. Depending on the colour of the cards and the ropes and sandpaper, you can outline each finished letter (optional).

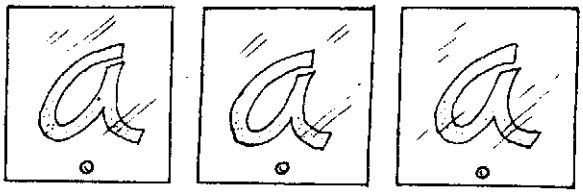
How to use

1. Show the child how to *feel* the shape of each letter by moving the index finger in the correct direction (as per the arrows) and in the correct 1, 2, 3 order.
2. Repeat this several times.
3. The child makes the same movement on the table or floor beside the card while the teacher watches.
4. The child may then be asked to write the letter in a bowl of sand or salt or on a slate, or paper.

Note: The dot below each letter indicates the bottom of the letter. Without this dot (or a thin coloured line), letters like 'M', 'W', 'p', 'b', 'd', 'u' and 'n' tend to get mixed up and confuse the child.

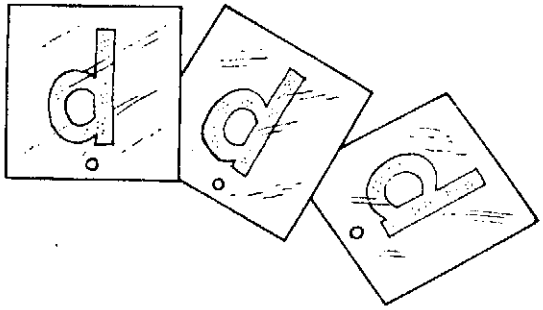
PICK UP THREE—a, b, c

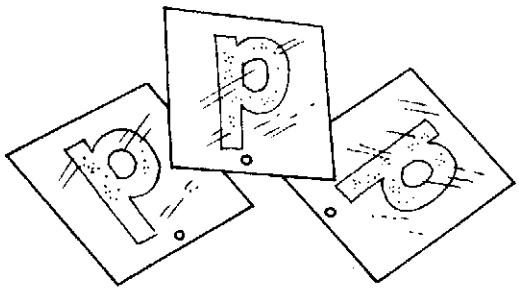
- **Pre-Reading Matching**
- **Alphabet Recognition**



You will need

- Seventy-eight pieces of 8 cm square cards
- A black marker pen
- A red marker pen





How to make

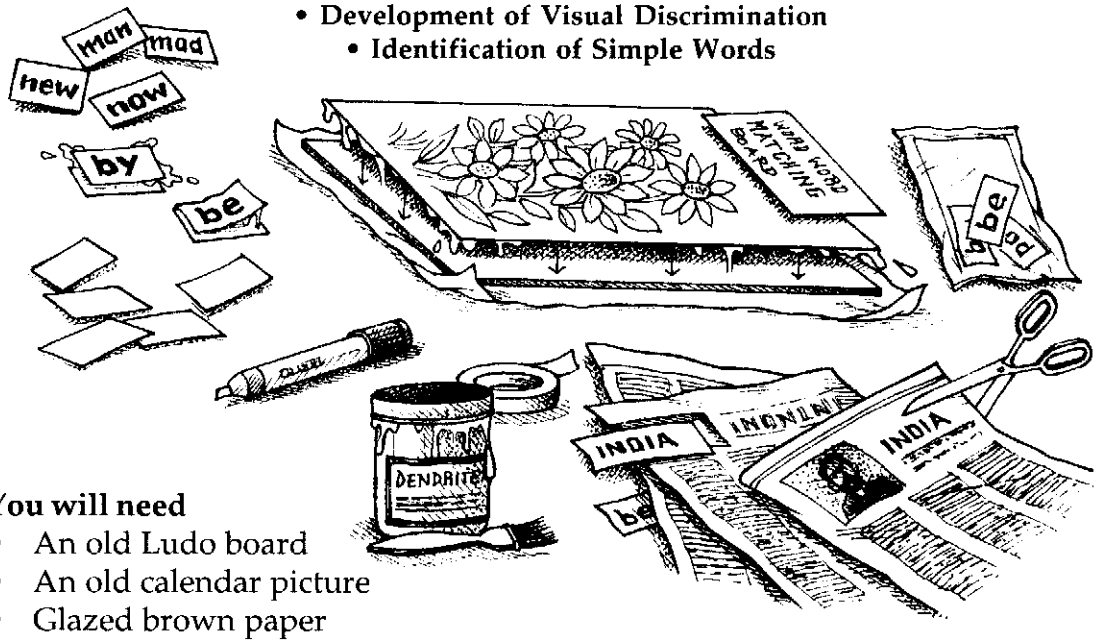
1. Using the black pen, write a letter of the alphabet on each card, making 3 cards for each letter.
2. Mark a very small red dot at the bottom centre of each card so that there is no confusion about which side is the top and which the bottom. Children will automatically learn to hold each card the right way up.

How to use

1. Deal all the cards out to a small group of children (5 to 8 in a group). The first child puts one of his/her cards face-up on the table/floor. If the next child to the left has the same letter, he/she puts it on the first card, if not, he/she says, "I pass." This continues till the third card is put on the other 2. The player who puts the third card down gets to pick up the set of 3 and keep at his/her side. Then the child to his/her left puts down a card to start another round. At the end, the winner is the one with the maximum sets of 3.
2. Similarly a set with capital letters like A, B, C can be made.
3. Take all the 156 cards for word-making, using capital letters for proper nouns or for abbreviations, like Delhi, Anita, TV, ICDS, MR., DR., STD.

WORD-WORD MATCHING BOARD

- **Development of Visual Discrimination**
- **Identification of Simple Words**



You will need

- An old Ludo board
- An old calendar picture
- Glazed brown paper
- A few pieces of card
- Dendrite gum (because of the glazed paper)
- Permanent black marking pen
- Newspaper headlines... you will need 2 copies of the same paper or magazine
- Coloured cello-tape
- An envelope or small plastic bag

How to make

1. Paste a picture on the front cover of the Ludo board.
2. Paste a piece of card across the top and print **Word-Word Matching Board** on it.
3. Paste glazed or laminated brown paper to cover the inside of the Ludo board. It is a bit more costly than ordinary brown paper, but it is much more long-lasting and will not get dirty with use.
4. Cut out two each of large-size simple words from the headlines or ads. Look for words that are almost the same, like ***boy/toy, man/can, cup/cap***, or the same word printed with a different type-face.
5. Paste one of the words on a piece of coloured card and the matching one on the board. The piece of card should be slightly larger than the word that is pasted on it.

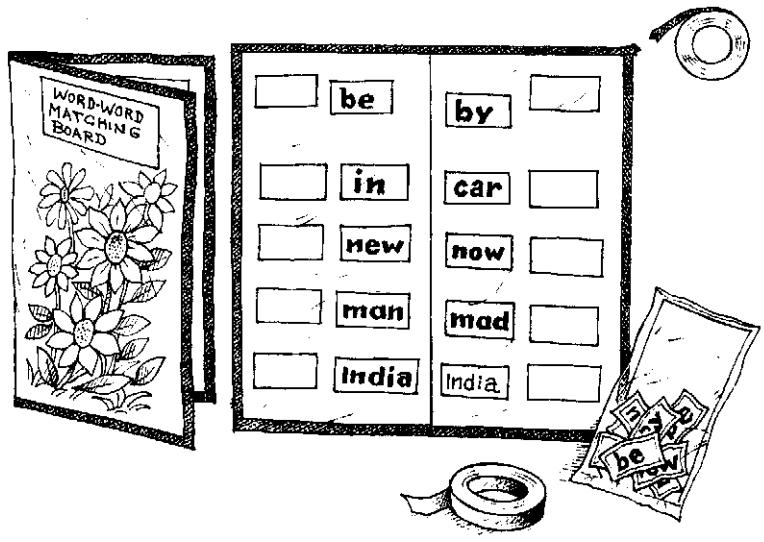
6. Next to the word on the board, draw a box to show where the matching word-card is to be placed.
7. Keep the word-cards in an envelope or small bag.
8. Use coloured cello-tape to cover all the edges of the board. This will make it more long-lasting and will give it a neat finish.

How to use

1. Children place the board on a table or on the floor.
2. They take out all the word-cards from the envelope. Note that there is a small red dot below each word. This is so that young children do not hold the word-card upside-down.
3. They put each card on the box next to its matching word.

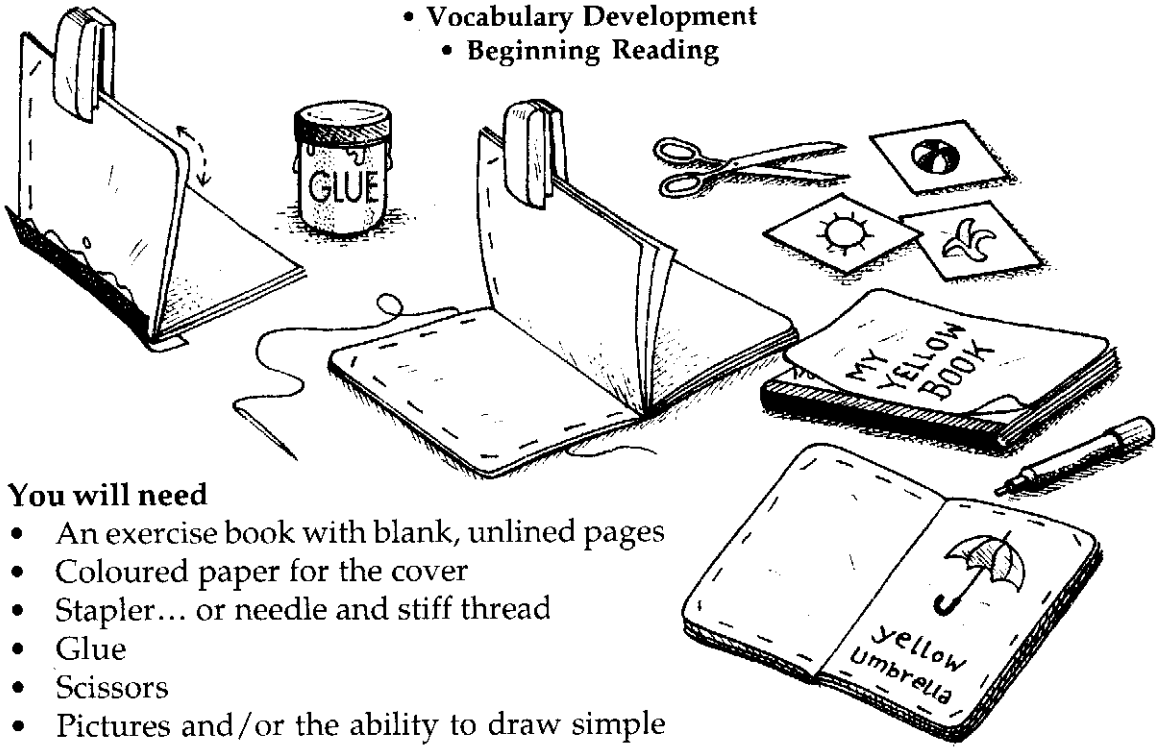
Other ideas

1. For very young children, you could make a board for just matching alphabets. One board could have the capital letters that are made of straight lines only and the other board could have the rest of the letters. They should NOT be arranged in the usual alphabetical order.
2. You could write the small letters on the boards and the capital letters on cards.
3. For very very young children, they could simply match colours... red card next to red strip on board, yellow next to yellow, etc.
4. Or they could match shapes.
5. Or match by shape and colour... green circle next to green circle, green square next to green square, blue square next to blue square, black triangle next to black triangle, etc.
6. Buy two sets of cheap charts on, say, transport, flowers, fruits, etc. Cut out the pictures of locally-available transport, flowers, fruits. Paste on the board and on little cards for match-match.



COLOUR-BOOKS/EXERCISE BOOKS

- **Colour Identification**
- **Vocabulary Development**
- **Beginning Reading**



You will need

- An exercise book with blank, unlined pages
- Coloured paper for the cover
- Stapler... or needle and stiff thread
- Glue
- Scissors
- Pictures and/or the ability to draw simple objects

How to make

1. Staple or stitch the first 2 pages to the front cover and the last 2 pages to the back cover. This will make the book more sturdy.
2. Staple or stitch 3 or 4 pages together till you come to the end of the book. This will give the book thick pages which can easily be turned by young fingers.
3. Use scissors to round the corners of each thickened page and also the cover. This will prevent corners from getting bent by frequent turning.
4. Cover the cover with paper of a single colour. If you cover it with yellow paper, write the title: "**Yellow Book**".
5. Cut out or draw pictures of yellow things that are easily recognised by the children: banana, sun, kite, balloon, car, umbrella, flower, fish, duck, etc.
6. Paste the picture on a page and print below it: **yellow ball**. Use only the small letters... not capitals.
7. The book could 'grow'... if you add a-picture-a-day till the book is finished.

Each day, review the previous pages aloud and add one more. By the time you come to the end, children should be able to 'read' the **Yellow Book** by themselves.

8. Make similar **Colour Books** for blue, green, red and even black (umbrella, cat, shoe, tyre, blackboard, slate, hair, comb, pencil, pen, etc.).

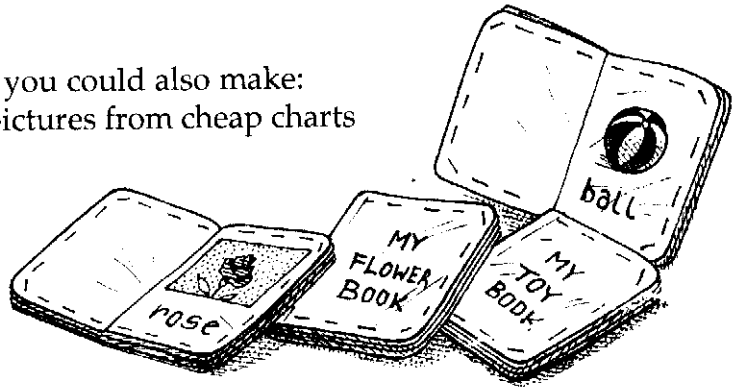
How to use

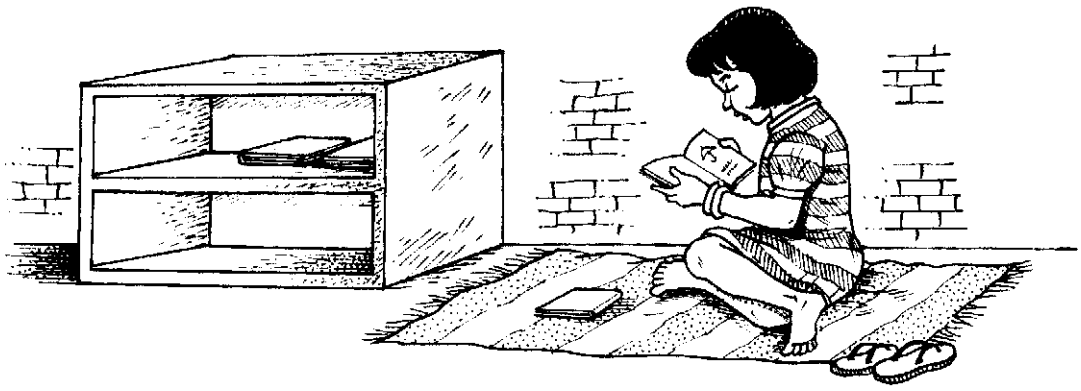
1. After completing step No.7 above, the books may be kept on a low shelf where children can take them for reading individually or in pairs. Keep a mat by the classroom bookshelf so that children can sit right there.
2. From time to time, have a **Colour Day**. Ask children to wear or bring something red when they come to school the next day. Review the **Red Book** aloud with the class and then invite children to come up one-by-one to show their **Red Day** things: ribbon, sock, flower, shirt, bangle, toy car, plastic mug, *bindi*, etc. When they show it, they should say a simple sentence like: "This is a red mug".

More ideas

In addition to Colour Books, you could also make:

1. Transport Book... using pictures from cheap charts
2. Flower Book
3. Tree Book
4. Clothing Book
5. Food Book
6. Wild Animals Book
7. Domestic Animals Book
8. Toys Book
9. Number Books... one book all for number one: 1 car, 1 boat, 1 postage stamp, 1 bus ticket, 1 smiling face, etc. and separate books for numbers 2 to 5 or 10.



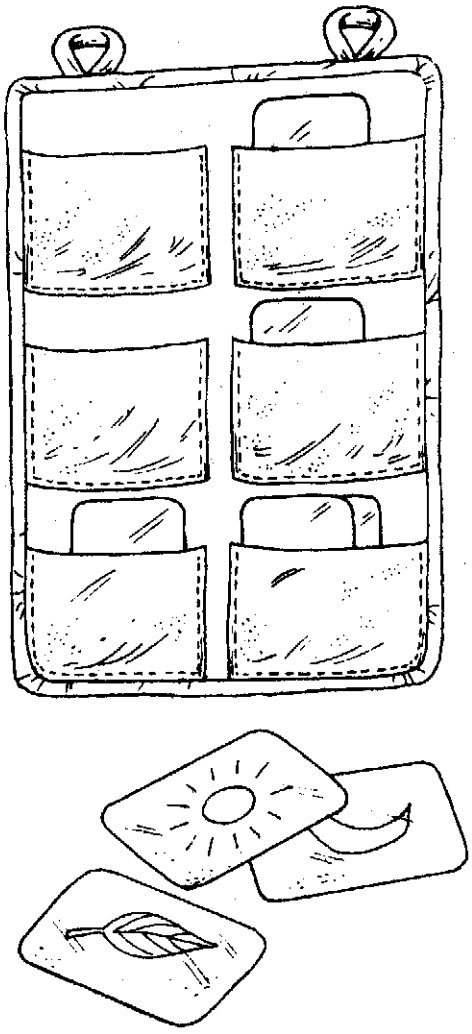


COLOUR POCKETS

- **Colours**
- **Vocabulary Development for Divergent, Independent Thinking**

You will need

- A pack of old playing cards or the flip side of old greeting cards, cut to size
- Simple black and white drawings of common objects either drawn on the greeting cards or pasted/stapled to the playing cards
- A piece of white post-office type marking cloth upon which 6 pockets are sewn. Each pocket should be in plain red, yellow, black, white, brown or green coloured cloth. Two loops can be fixed at the top for hanging up and for display so that the whole class can see



How to use

1. Show the pictures. Name the objects. Talk about them.
2. When the children can more or less say the name of all the objects, place the cards in a stack with the picture-side facing down. Ask a child to take a card, say its name, and put it in the pocket that shows its colour.
3. Discuss his/her choice by asking, "Can it be in any other colour? Is a newspaper black or white? Are you looking at the paper or the print? What colour is a raw banana? A ripe banana? An over-ripe banana? The inside of a banana?"
4. Give each child one or two cards. Say riddles like: "I live in a tree. I have a mother and a father. I like to eat. I like to play. I have a cute face and a very long tail. Who am I?" The child with the picture of a monkey on a card jumps up and says, "You are a brown monkey." He puts the card in its correct pocket.

5. Give each child one or two cards and announce, "I want something red that helps to cook our food." The child with a picture of an LPG gas cylinder jumps up and says, "Here I am. I am a red gas cylinder."

Variations

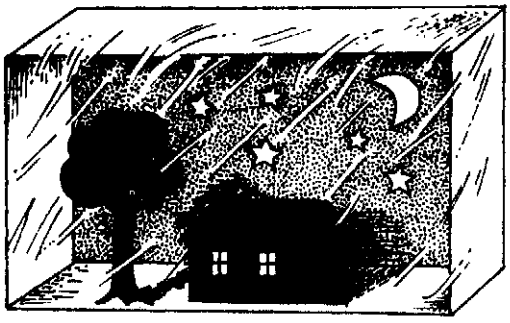
Here are some objects that can be used for pictures of each colour, but remember that a few come in more than one colour.

BROWN	tree trunk or stump, deer, monkey, bear, rope.
GREEN	leaf, pine tree, banana plant, parrot, peas, grass.
YELLOW	sun, sunflower, banana, mango.
WHITE	cloud, star, moon, newspaper, cow, goose or swan, egg.
BLACK	tyre, crow, slate, hair, buffalo, ace of spades or clubs in a pack of playing cards.
RED	rose, gas cylinder, post-box, ace of hearts or diamonds, slice of watermelon (unless you are looking at the black seeds, the white rind or the green skin!).

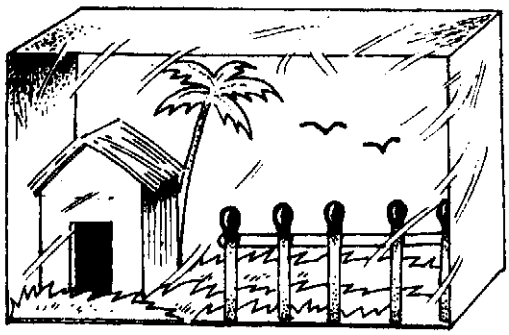
Courtesy: Learning Tree

MATCHBOX SCENERY

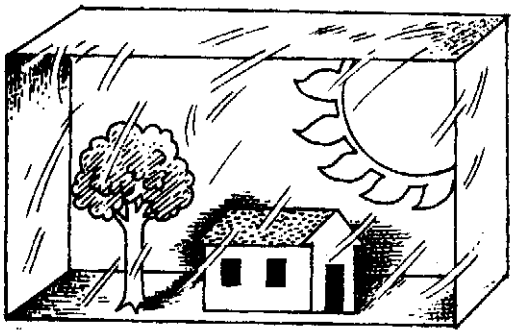
- **Vocabulary Development**
- **General Knowledge**



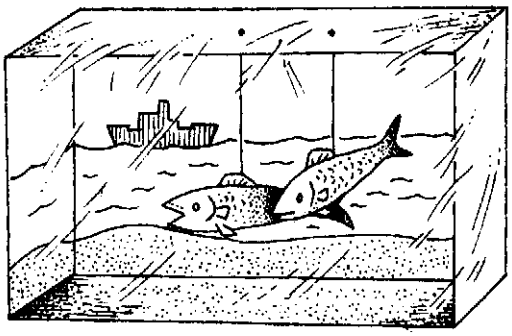
Night



Land



Day



Water

You will need

- Large matchboxes
- Assorted scraps of coloured and textured paper
- Fevicol/glue
- Tweezers for placing small pieces in place and holding them there till the glue is dry
- Cellophane paper to cover front of the box once the scenery is complete
- Lots of love, patience and imagination

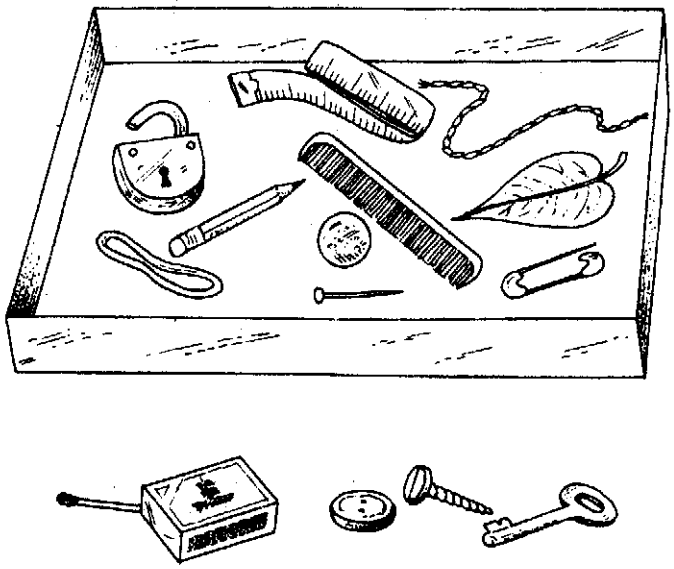
Courtesy: Zofin Moochhala

VOCABULARY BOX

- **Observation**
- **Names of Objects**
- **Prepositions**
- **Memory**

You will need

- A large shallow box about the size of a flat file
- 12 to 20 small objects like a button, pencil, piece of chalk, small car, marble, ball, feather, rubber band, key, key-chain, padlock, gem-clip, piece of string, bangle, small comb, toothpaste lid, jar lid, empty matchbox, used matches tied in a bundle, stone, piece of coal, nail, bus ticket, shoe-lace, dice, small plastic animals, clothes-clip, hair-clip, leaf, flower, etc.



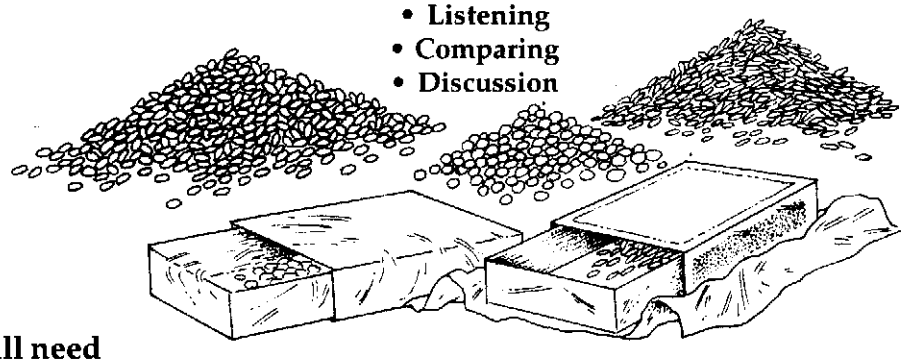
How to use

1. To teach nouns, ask, "What is this?" The child will reply, "It is a pencil."
2. For prepositions, say "Put the pencil *under* the spoon," or "Place the gem-clip *inside* the circle of the red bangle," etc.
3. Concept of size, shape, colour, etc. can be given by saying, "Please give me the smallest thing in the box," or "Priya, please give the blue lorry to Naresh," or "Who can give Aliya something made of wood?" etc.
4. In memory games, a child covers his/her eyes while an object is removed from the box. On opening his/her eyes, the child is asked to identify the missing object. Two or even 3 objects can be removed at a time. Similarly, a new object is added to the box. Ask what has been put in.

Note: From time-to-time, new objects can be placed to replace some old ones.

MATCHBOX SEED-SORTERS AND SEED-SOUNDS

- **Identification of Food Grains**
- **Sorting**
- **Listening**
- **Comparing**
- **Discussion**



You will need

- Empty matchboxes; thin wooden ones make better sounds than those made of cardboard
- A handful each of locally available grains like maize, wheat, thick long-grained rice, small fine rice, *bajra*, etc.
- Bits of coloured paper to paste on the boxes, so that each is a different colour
- Bits of clear cellophane paper

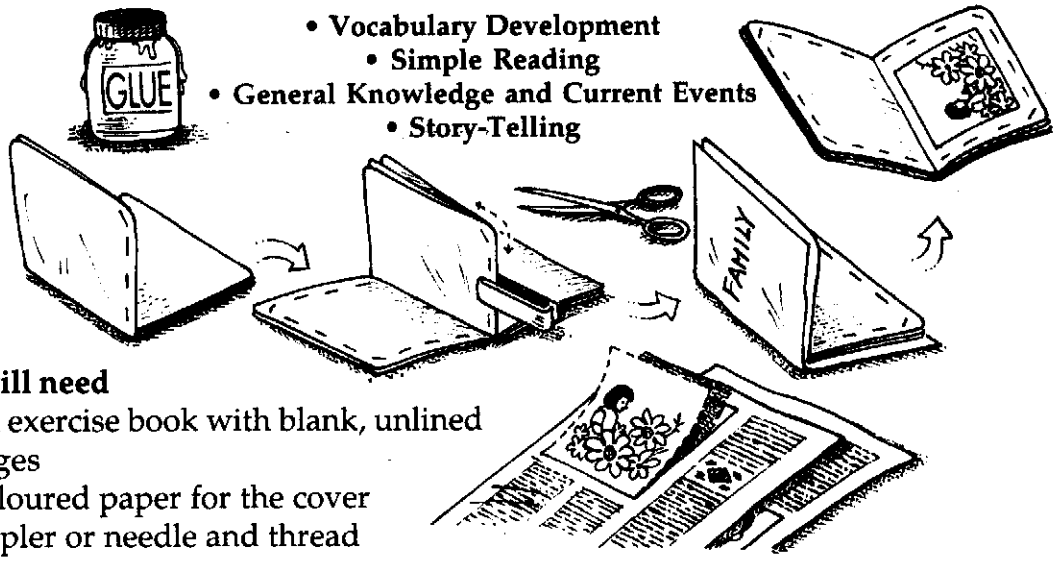
How to use

1. Show the grains to the children.
2. Talk about their names, colours, sizes, what we do with them, how we prepare them, etc.
3. Mix up the grains and give a spoonful to each child. Ask the children to sort out and put the wheat grains in one heap, the rice grains in another, and so on.
4. Fill a matchbox half with wheat, close the box, and shake it. Listen to the sound.
5. Do the same with the other grains.
6. Ask the children, "Which one makes the most noise?" "Which is the biggest grain?" "Which makes the softest sound?"
7. Play a guessing game by covering the inside trays of the boxes with clear cellophane paper so that the grains do not fall out. Ask the children to close their eyes while you interchange the coloured lids and the trays. Then ask a child to shake a box, listen, and tell what is inside. Slide the box open to check if the child's answer is correct.

Note: You can also use different types of *dal* (lentils).

Courtesy: *Let's Play*, UNICEF, SCAR, New Delhi

NEWSPAPER PHOTO PICTURE-BOOKS



- **Vocabulary Development**
- **Simple Reading**
- **General Knowledge and Current Events**
- **Story-Telling**

You will need

- An exercise book with blank, unlined pages
- Coloured paper for the cover
- Stapler or needle and thread
- Scissors, glue
- Pictures from newspapers and magazines
- Nowadays, newspapers have interesting photos on the front page and the pages with local news.

How to make

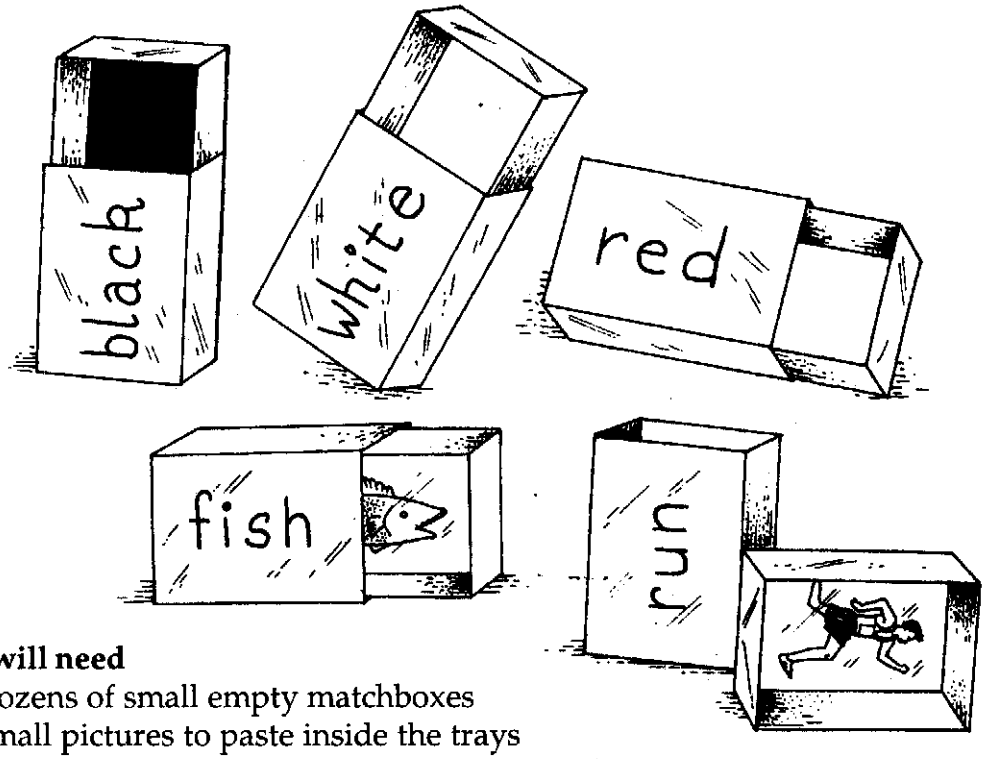
1. Staple or stitch the first 2 pages to the front cover and the last 2 pages to the back cover. This will make the book more sturdy.
2. Staple or stitch 3 or 4 pages together till you come to the end of the book. This will give the book thick pages which can easily be turned by young fingers.
3. Use scissors to round the corners of each thickened page and also the cover. This will prevent corners from getting bent by frequent turning.
4. Cover the book with a paper of a single colour and print the title: "Family", "Sports", "Animals", "Children", etc.
5. Inside the book, paste the photos on the right-hand pages and print a few words or simple sentences on the left-facing page.

How to use

Gradually make about 20 such books for a group of about 30 children. They should be encouraged to 'read' or look at the books whenever they have free time. In this way, their vocabulary and general awareness will greatly increase.

MATCHBOX NOUNS, VERBS, COLOUR WORDS

• Vocabulary Development
• Self-Teaching Word Recognition



You will need

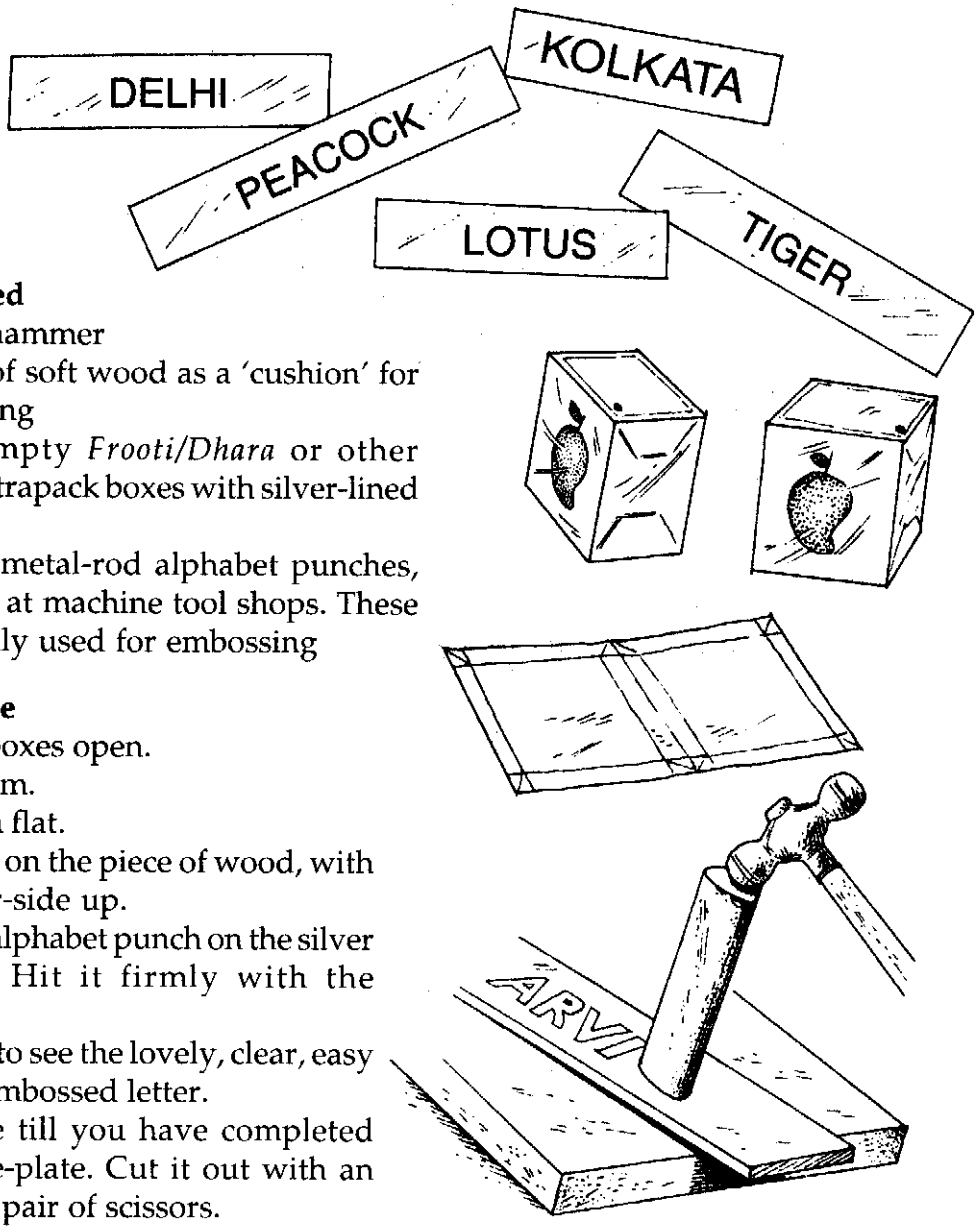
- Dozens of small empty matchboxes
- Small pictures to paste inside the trays
- Scraps of white or coloured paper to cover the box-tops
- Glue
- Marking pen

How to use

1. The child is asked to read the word printed on the cover. Then the tray is pushed out to check if he/she has read what the picture shows.
2. Remove all the trays from their covers and mix them on the table/floor. Ask the children to place them in pairs.
3. Hand a child a Verb-Box. He/she has to carry out or do what the word says. Another child may open the box to see if the act is correct. Point to a colour on a child's shirt/dress and ask the child to pick up the matching colour-box. Hand it to another child to open and see if the first child is correct.
4. Older children could be asked to line up the boxes in alphabetical order.

NAME-PLATES

- **Vocabulary Development**
- **Spelling**
- **Eye-Hand Control**



You will need

- A small hammer
- A piece of soft wood as a 'cushion' for hammering
- Many empty *Frooti/Dhara* or other sturdy tetrapack boxes with silver-lined insides
- A set of metal-rod alphabet punches, available at machine tool shops. These are usually used for embossing

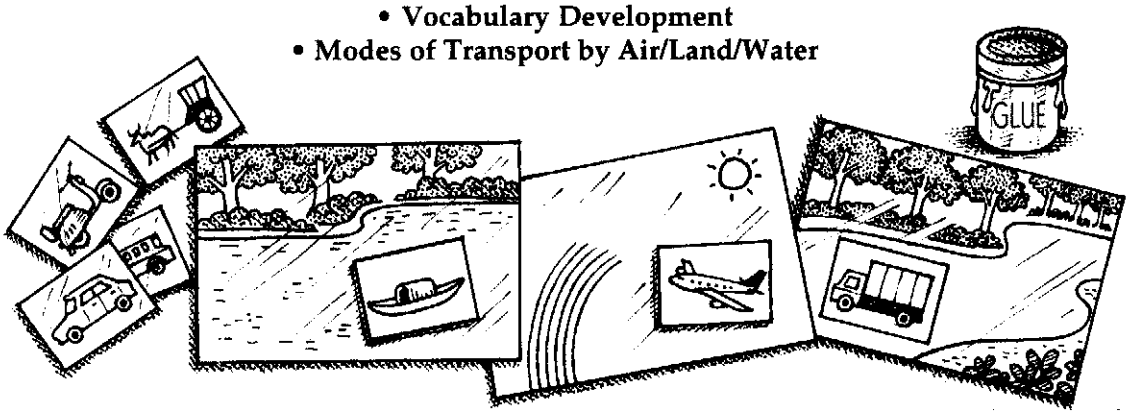
How to make

1. Cut the boxes open.
2. Wash them.
3. Lay them flat.
4. Put them on the piece of wood, with the silver-side up.
5. Place an alphabet punch on the silver surface. Hit it firmly with the hammer.
6. Lift it up to see the lovely, clear, easy to read embossed letter.
7. Continue till you have completed the name-plate. Cut it out with an ordinary pair of scissors.

Courtesy: Arvind Gupta

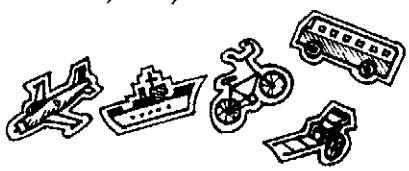
TRANSPORT GAME

- **General Knowledge**
- **Vocabulary Development**
- **Modes of Transport by Air/Land/Water**



You will need

- 3 boards of the same size... about 9 x 11 inches (old Ludo boards, hard covers of old lab notebooks, hard covers of old ledgers or registers, piece-board, etc.)
- 3 pieces of chart paper to cover the boards
- Glue, scissors, black marking pen, crayons or paint
- Pictures of various means of transport (drawn by the teacher, from old magazines and books, from the cheap charts available in the market, etc.)
- Pieces of stiff card on which to paste the pictures



How to make

1. Cover each board with a sheet of chart paper.
2. On one board, illustrate the sky... blue background, a cloud, the sun, a rainbow, etc.
3. On another board, illustrate a body of water... slightly wavy blue lines, may be a small fish or two, a shoreline at the top with a bit of brown earth and some grass.
4. On the 3rd board, illustrate the earth... with a wide, brown road, grass, some trees and bushes.
5. Cover each board with clear cello-paper, if available.
6. Cut out small pictures of cars, bikes, boats, planes, bullock-carts, rickshaws, etc. and paste on card. Then cut again around the shape of the vehicle. For older children, neatly print name of the vehicle on the back.

How to use

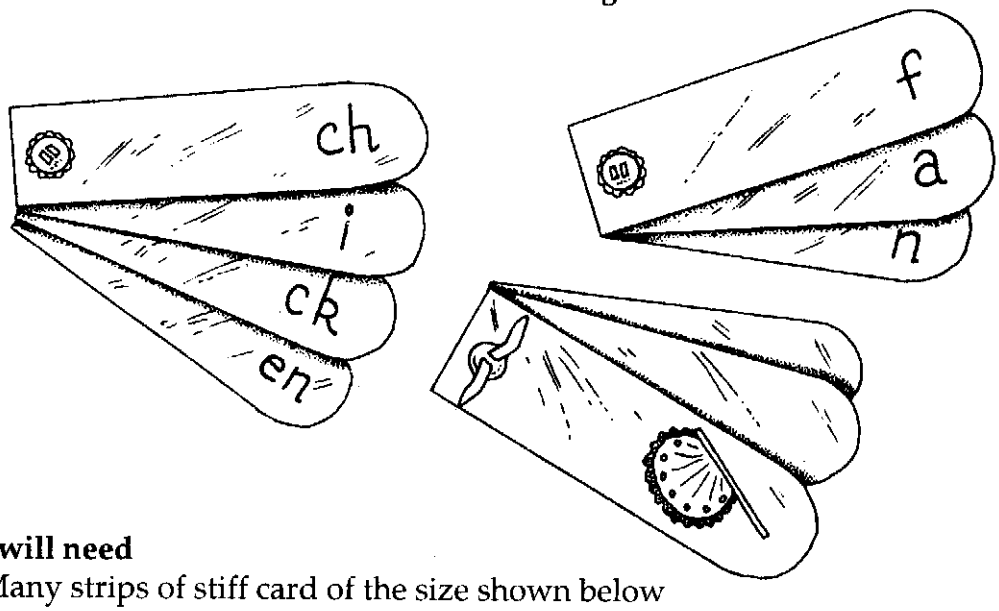
1. *For young children,* put the pieces in a cloth bag so they cannot see which one they are taking out. A child should take one piece, say its name and put it on the correct board.
2. *For older children,* arrange the pieces face-down on the floor or a table. They are to 'read' the name of a piece and then put it on the correct board.

Other ideas

1. Sort out **wild** and **domestic animals** with two boards... one with a typical village scenery and the other illustrated to look like a jungle.
2. Sort out **fruits** and **vegetables**... a market-bag drawn on one board and a big fruit-bowl or basket on the other.

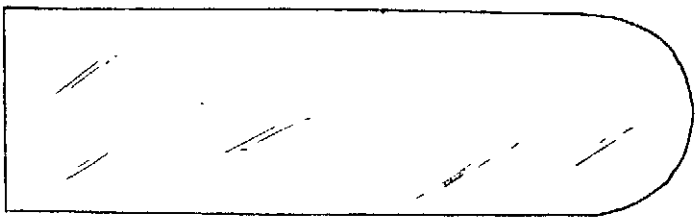
FAN WORDS

- **Reading/Spelling with Phonetically Regular Words**
- **Self-Checking**

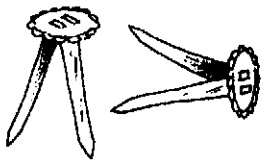


You will need

- Many strips of stiff card of the size shown below



- Split pins (used for closing big envelopes)



- Black marking pen
- A collection of very small pictures of common objects
- Storage boxes (about the size of a soap box) for keeping each category of words like Animals, Transport, Household Items, etc.

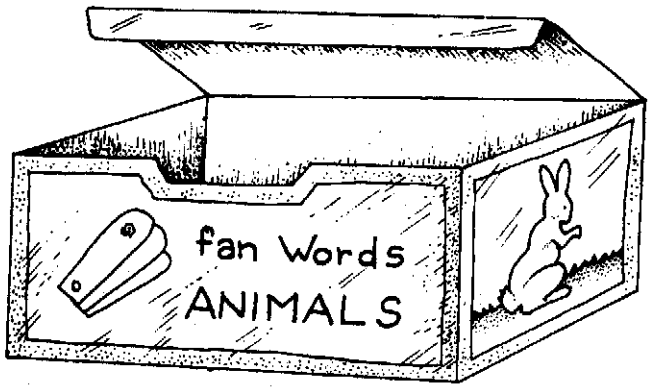
How to make

1. Take as many strips as there are sounds in the word, e.g. 3 for the word 'fan'—f + a + n, 4 for 'clock'—c + l + o + ck (where c and the k together make only one sound, so, they are written together), 3 for 'sheep'—sh + ee + p, etc.
2. Write a letter or combination of letters on each strip.
3. Paste the matching picture on the back of the last strip (for self-checking by the child).
4. Using a compass point or a paper punch, make a hole at the straight-edged end of the set of strips.
5. Fix the Fan Word with a split pin so that the fan easily opens up to reveal each letter.

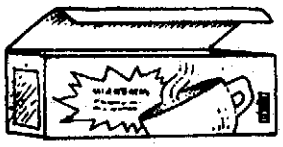
Courtesy: A Montessori Class I, near Cologne, Germany

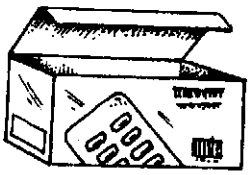
SMALL STORAGE BOXES

• For Organising Teaching Aids

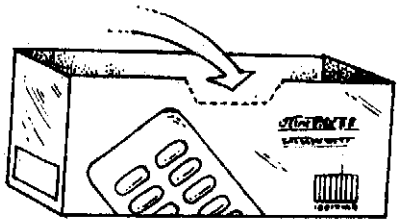


- Select boxes that open at the top.


Tea bags


Medicine strips

- Make a notch for easier opening.

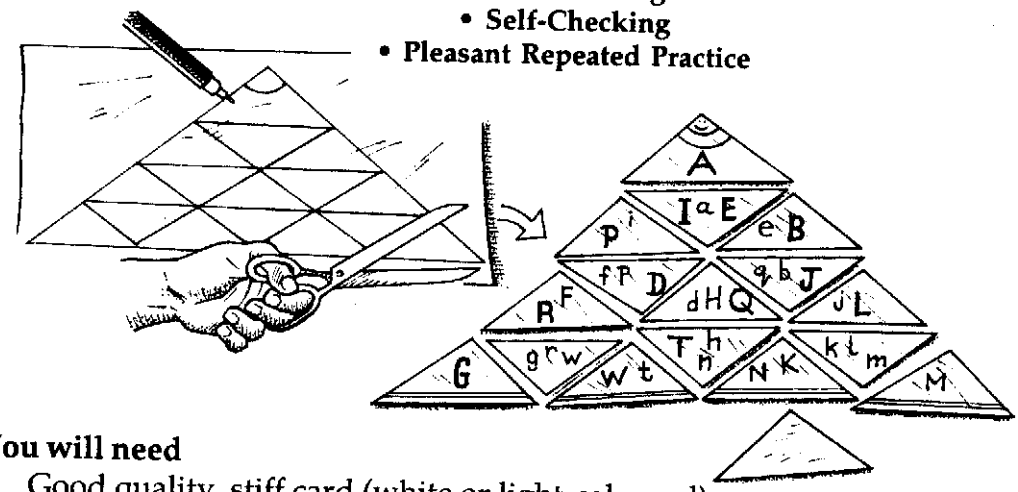


- Strengthen these flimsy boxes by:
  A. Cutting pieces of card the same size as top, bottom and sides of box and pasting them inside the box. Use Fevicol.
  B. Pasting strips of brown paper (from old envelopes) across the side and bottom joints from the outside.
  C. Paste silver or other strong colourful paper around the box.
  D. Stick coloured cello-tape along the outside edges.
- Label the box according to its contents.

Courtesy: Mohua Sarkar

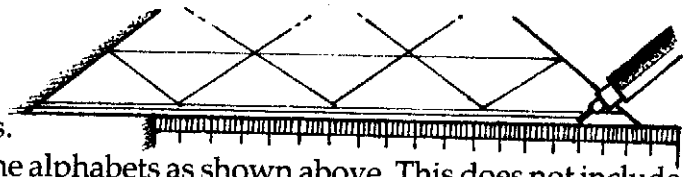
TRIANGLE PUZZLES

- **Self-Teaching**
- **Self-Checking**
- **Pleasant Repeated Practice**



You will need

- Good quality, stiff card (white or light-coloured)
- Permanent black marking pen for writing on the triangles
- Permanent pen of any bright colour for marking double guidelines on the 7 small triangles that will make the bottom row of the big triangle
- A stencil of a triangle with a base of 5½ inches and sides of 4 inches. Old x-rays make very good stencils



How to make

1. Draw and cut out 16 triangles.
2. With a thick black pen, write the alphabets as shown above. This does not include x, y, o, z, c, s, u or v because the large and small letters look the same.
3. With a coloured pen, mark a double straight line across the bottom line of cards. These serve as guidelines for the children and makes the puzzle a little easier.
4. Note that the name of the puzzle is written on the top piece, just below the smiling face.

Triangle Puzzle for A, B, C..., a, b, c

- Paste on card.
- Then cut into separate △ pieces.

Triangle Puzzle for tables of 4 and 5

- Paste on card.
- Then cut into separate △ pieces.

How to use

1. Demonstrate the puzzle for a small group of children.
2. First, put down the top piece... facing in their direction... and tell the name of the puzzle.
3. Below the capital letter "A", place the small triangle that has the small "a" at the top.
4. Point out the two letters on each side of the small "a"... big "I" and big "E".
5. Look for the card that has a small "e" on one side and place it next to the big "E".
6. Look for the card that has a small "i" on one side and place it next to the big "I".
7. This completes the 2nd row.
8. Continue matching large and small alphabets till the big triangle is complete.
9. Now keep the top piece down and mix up all the other pieces. Set them face-up on one side and ask the children to take turns finding one small triangle at-a-time and putting it in the right place till the whole big triangle is complete.

More ideas for Triangle Puzzles

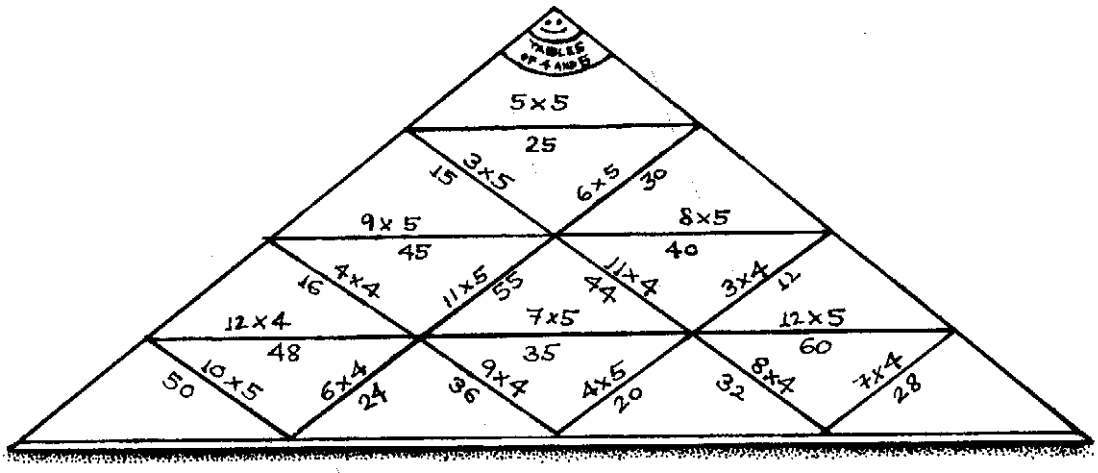
Word-Picture for beginning readers: cat, bat, cow, etc.

Double Words: tooth/brush, ice/cream, bed/room, butter/fly, etc.

Male and Female Words: king/queen, sister/brother, aunt /uncle, he/she, etc.

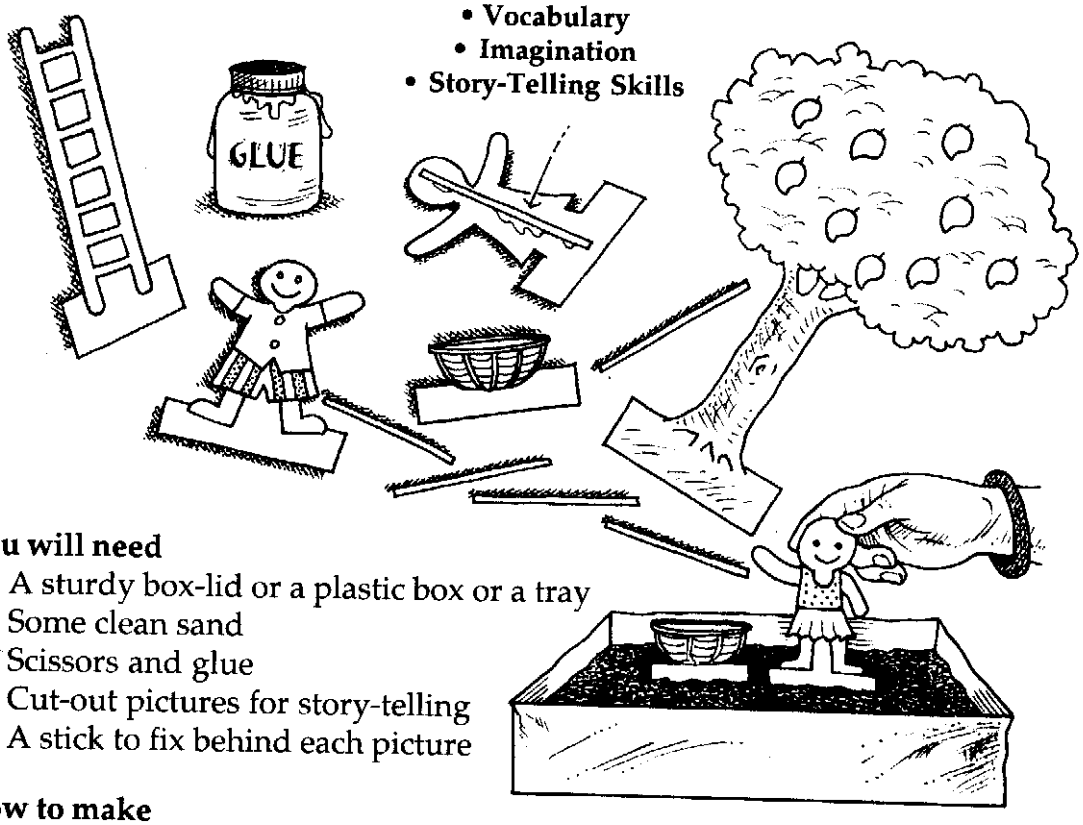
Geography Words: Indian states and capitals, world countries and capitals

Math Triangles: <u>Number/name</u>... 3/three, 10/ten, etc.
<u>Multiplication Tables.</u> You can do two tables at-a-time, leaving out 1 x and 2x.



STORY-TELLING SAND-BOX

Development of
- **Vocabulary**
- **Imagination**
- **Story-Telling Skills**



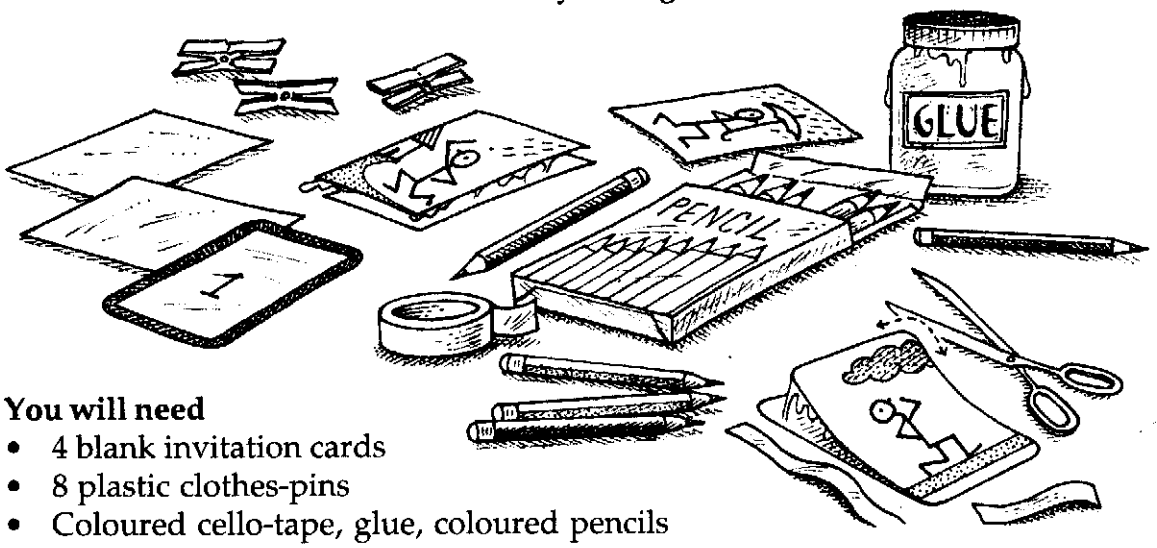
You will need
- A sturdy box-lid or a plastic box or a tray
- Some clean sand
- Scissors and glue
- Cut-out pictures for story-telling
- A stick to fix behind each picture

How to make
1. Fill the lid or tray with sand.
2. Cut out and paste pictures of story characters and items like trees, cars, houses, etc. onto stiff card. Then cut them out again.
3. Fix an ice-cream stick or any other stick behind each picture using tape or glue or even by stitching with needle and thread.
4. About 2 inches of each stick should be sticking out **below** each picture-piece... or leave an inch or so of blank area below each piece.

How to use
1. While telling a story, poke each picture-piece into the sand so that it stands up and everyone can see it. As the story progresses, you can move the pieces along or take them out according to the events in the story.
2. Children can be given different pieces and asked to make up their own stories.

STORY-TELLING CARDS

- **Vocabulary Development**
- **Sequencing Skills**
- **Speaking in Sentences**
- **Story-Telling**



You will need

- 4 blank invitation cards
- 8 plastic clothes-pins
- Coloured cello-tape, glue, coloured pencils
- Pictures that tell a story step-by-step
- Old social studies and science books have illustrations for stories like the life cycles of butterflies, frogs, from seed to flower, etc.

You could also make simple drawings like (1) a new candle, (2) candle lit and wax dripping a bit, (3) candle more than half-melted, (4) candle just a puddle of wax and the wick burnt out

How to make

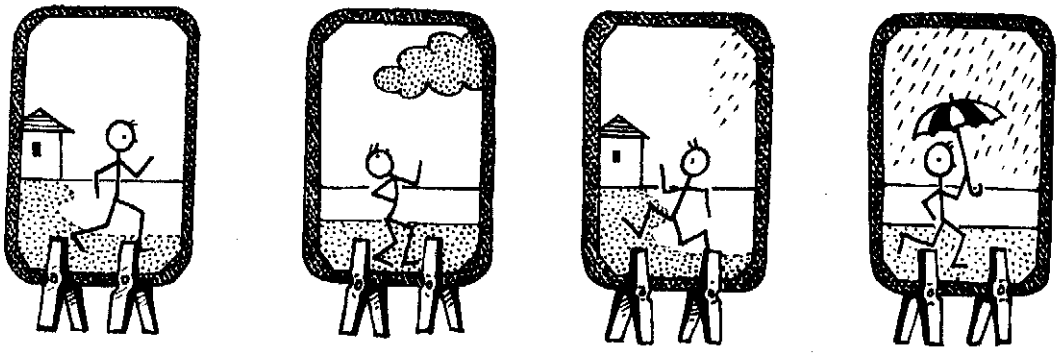
1. Draw or cut and paste the pictures on the cards.
2. Make a stiff frame for each card by sticking coloured cello-tape all round the edges.
3. Write the numbers 1,2,3,4 **on the back** of the cards... 1 behind the first card, 2 behind the second, etc.

How to use

1. Show the first picture. Say a sentence or two about it.
2. Attach two clothes-pins to the bottom to make the card stand up.
3. Show the second picture-card. Say a simple sentence or two and stand it up next to the first card.

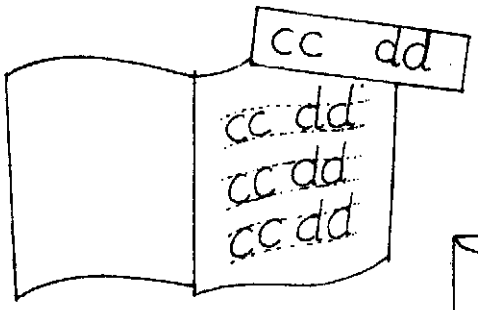
4. Continue till the story is complete.
5. Repeat the story as you point to each card in sequential order.
6. Ask a child to tell about the first card.
7. Another child to tell about the next card, etc.
8. Ask if any child can say the whole story.
9. Ask a child to cover his/her eyes. Change the order of the cards, and then ask the child to open his/her eyes and put the cards back in the correct order.

Note: For beginning readers and writers, print key words on the back of each card. Then ask them to write a sentence about each picture... first picture No. 1, then picture No. 2... till they have actually written a little story!



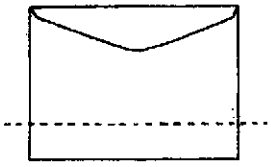
COPY-WRITING GUIDES

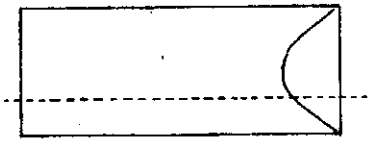
- **Language Development**
- **Handwriting**

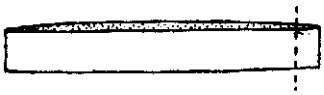


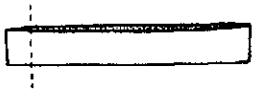
You will need

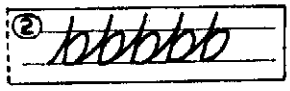
- Used envelopes
- A pair of scissors
- A ruler
- Black marking pen











How to make

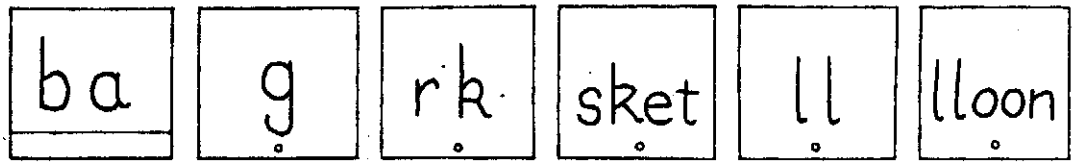
1. Draw lines about 4 cm from the base of used envelopes. Cut along the lines.
2. Cut open the right end of half of them and the left end of the others.
3. Turn them round, so that the folded edge is at the top.
4. Draw 2, 3 or 4 lines or as many as there are in an exercise book.
5. Write a full set of joined letters and patterns to include the entire hand-writing syllabus for a term. Number them in the order of their complexity. Children can, at their own individual pace, take a copy-writing guide, fix it to the top of their exercise page, copy it and then show to the teacher. If correct, they can take the next one. You will need several such sets for a class.

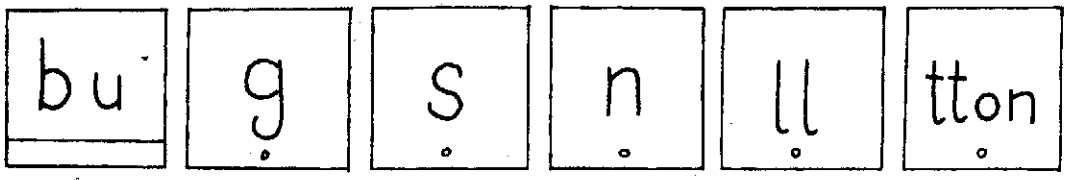
Advantages

- Eliminates need for handwriting books.
- Permits a quick child to advance quickly and a slow child to proceed at his own pace and learn through repetition.

WORD-MAKING PAIR PACKS

- **Vocabulary Development**
- **Reading**
- **Spelling**



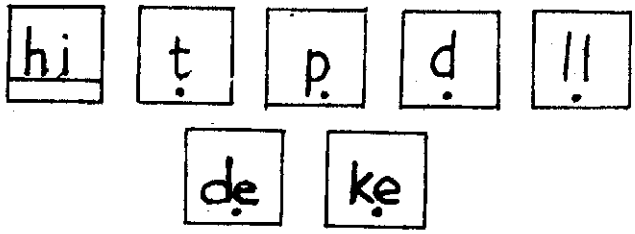


You will need

- Dozens of 8 cm or 6 cm square cards
- Marking pens

How to make

1. Start with common words where the vowel sound is more or less 'short', for instance, *a* in pant; *e* in leg; *i* in sit; *o* in box; *u* in umbrella.
2. Later, children can be told that sometimes the letter 'a' says its own name, e.g. *a* in baby; *e* in me; *i* in high school; *o* in rose; *u* in tube. This can be followed by adding 'long' vowel sounds, e.g. *e* in 'leg' becomes a long vowel in 'me'.



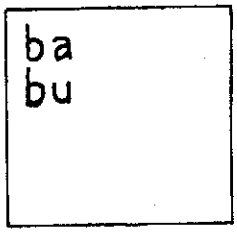
How to use

1. The child can practise alone, or with a teacher or a partner.
2. For self-teaching the master list may be consulted but the *note* below should be carefully seen.
3. A small group may play a game by putting the beginning cards face-up on the table and the ending cards in a stack. They then take turns picking up an ending card, matching it to a beginning card and reading the word aloud. You might mix up 2 or 3 packs for the game but be sure to sort them out again immediately afterwards!

Note: Each pack must be kept in a separate envelope or small plastic bag or large matchbox or soap box so that the sets do not get jumbled up. Each set should include a master-list card showing (in small print) all the words that can be made. If both the beginning letters can make a word with the same ending, then include 2 cards with the same ending, for instance,

ba + g
bu + g

As a precaution against any mix-up, the back of each ending card in the 'ba/bu' pack should have 'ba/bu' written on it in small letters:

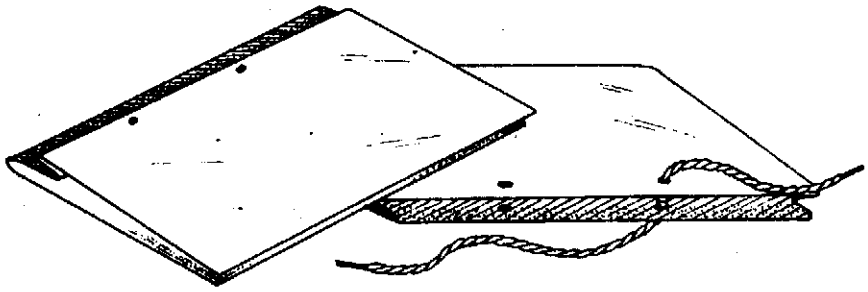


Each pack has only 2 beginning cards and any number of ending cards. The beginning cards are easily identifiable because a coloured line is drawn across the bottom. The 'ba/bu' pack might have a red line, a 'bo/be' pack could have a blue line, and so on so forth.

Courtesy: John Ellis

WORD BANK WITH CURRENT ACCOUNT AND FIXED DEPOSIT

- **Basic Literacy for Child or Adult**
- **Reading/Writing**
- **Alphabetical Order**
- **Banking Concepts**

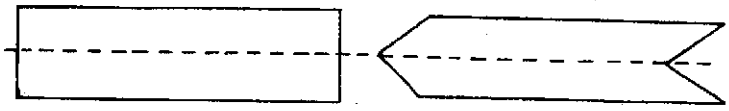


You will need

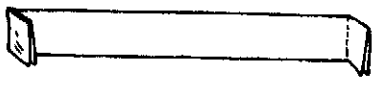
- A pair of old lab-file covers with a shoe-lace. These can be obtained from high schools after exams
- Eight to 10 strips of stiff white or light-coloured cards about 5 cm wide and as broad as the width of the inside of the covers
- Blank pieces of ordinary paper about 2.5 cm wide and 7.5 cm long
- A length of string long enough to tie both ways round the outside of the closed cover to prevent the word strips from falling out
- An old large envelope of a fairly stiff paper
- Fevicol
- Stapler

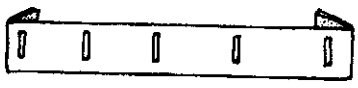
How to make

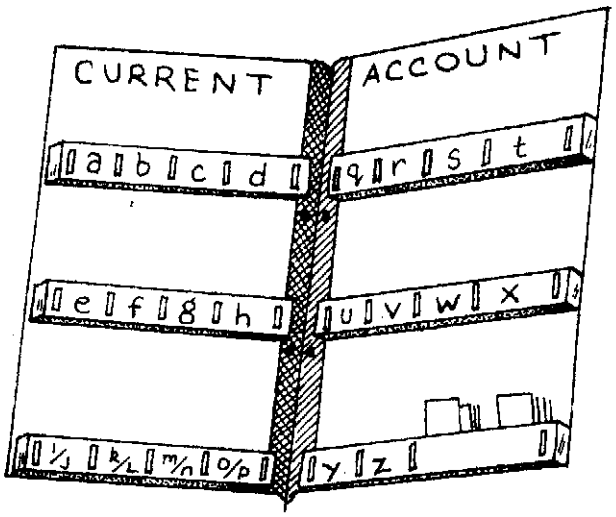
1. Fold each long strip of card in half, lengthwise.



2. Slightly bend about half a cm of each end inwards and staple the ends.
3. Staple 3 or 4 times along each strip to make little storage pockets.
4. With Fevicol, fix these strips onto the inside of the covers.







Deposit Slips—Blank pieces of paper for new words

- Write a letter of the alphabet on each pocket. Keep the last few pockets blank for holding *Deposit Slips*—blank pieces of paper for writing new words. In every language, some letters are infrequently used for beginning words. These can be doubled or tripled up in a single pocket, like 'ijk', 'opq', 'uv', 'wxyz'.

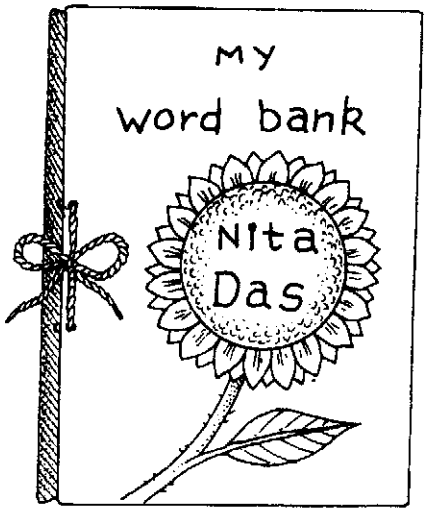
  The *Current Account* pockets are used for keeping the word strips until the student has mastered them and no longer needs to refer to them when writing. Then they are put in the *Fixed Deposit* envelope at the back of the file cover.
- With Fevicol, fix an old, strong envelope on the back of the *Word Bank*. It should be open at the top to serve as a handy pocket for storing all the words the student has learnt (secured in his/her memory). This may be labelled *Fixed Deposit*. A *Monthly Account* of its contents may be kept inside.

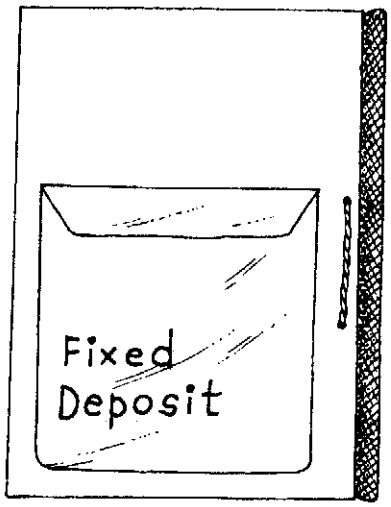
  Each student should have his/her own *Word Bank*. Encourage students to decorate the covers.

How to use

1. The student discusses with the teacher the topic he/she wants to write and the words he/she will need. The teacher may also suggest some new words. The student consults his/her *Word Bank* for the words required and then withdraws them. The new words required are written by the teacher clearly, in large, neatly printed letters on the blank *Deposit Slips*. The student now arranges the word strips in a sentence or a phrase before reading aloud to the teacher or a classmate. The new words should be particularly emphasized, read aloud, spelt phonetically and taken out of the sentences to be used as flashcards.
2. Now the student re-assembles the words in the sentences and practises writing on a slate or paper.

3. On finishing writing, the student needs to replace the words in their correct *Current Account* pocket. This provides another opportunity to read the words and become familiar with the alphabetical order.
4. The teacher should regularly go through the contents of the *Word Bank* with the student. Mastered words can be kept in the *Fixed Deposit* envelope. Words which are used rarely or never at all may be removed.





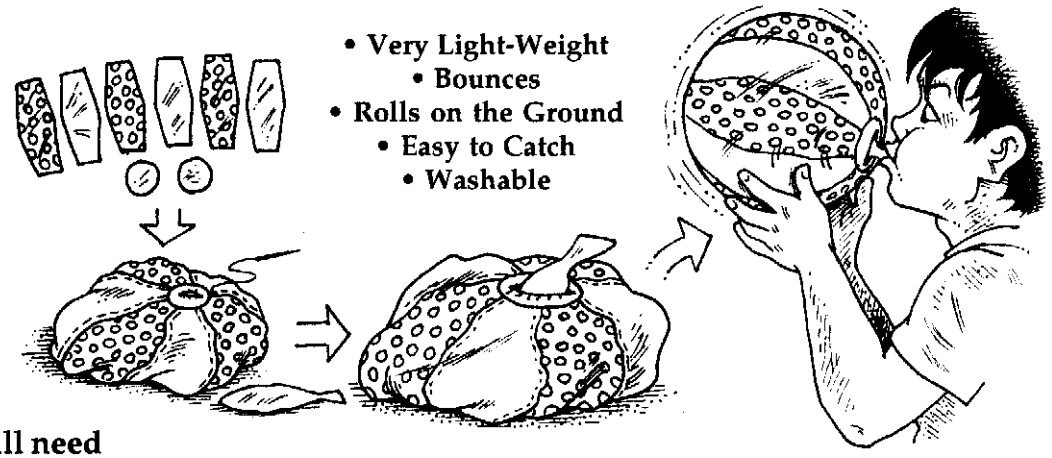
Note: Care should be taken to see that more than 100 words are not stored in the *Current Account* at one time because it is difficult to manage and the words will fall out. Initially use of slang words and colloquial expressions may be permitted if the student needs them to express himself/herself.

Courtesy: John Ellis

Section III

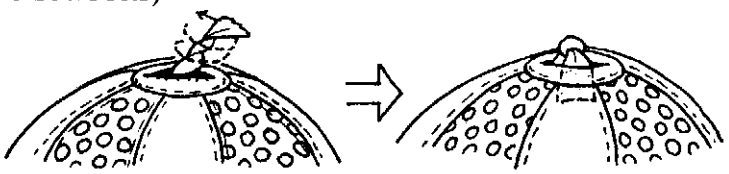
EYE-HAND COORDINATION

BALLOON BALL



You will need

- 2 circles of cloth (cotton or thick polyester)
- 6 pieces of cloth cut into the shapes shown in the illustration (measurements depend upon the size of the balloons)
- A sewing machine
- Also needle and thread
- A large balloon



How to make

1. Cut and blanket-stitch a 1 inch long button-hole in the centre of one circle.
2. Machine-stitch the 6 panels together, leaving a 3 inch opening at one side.
3. Sew the plain circle at one end and the one with a button-hole at the other end.
4. Turn the ball-shaped cloth right-side-out and hand-stitch the 3 inch opening.

How to use

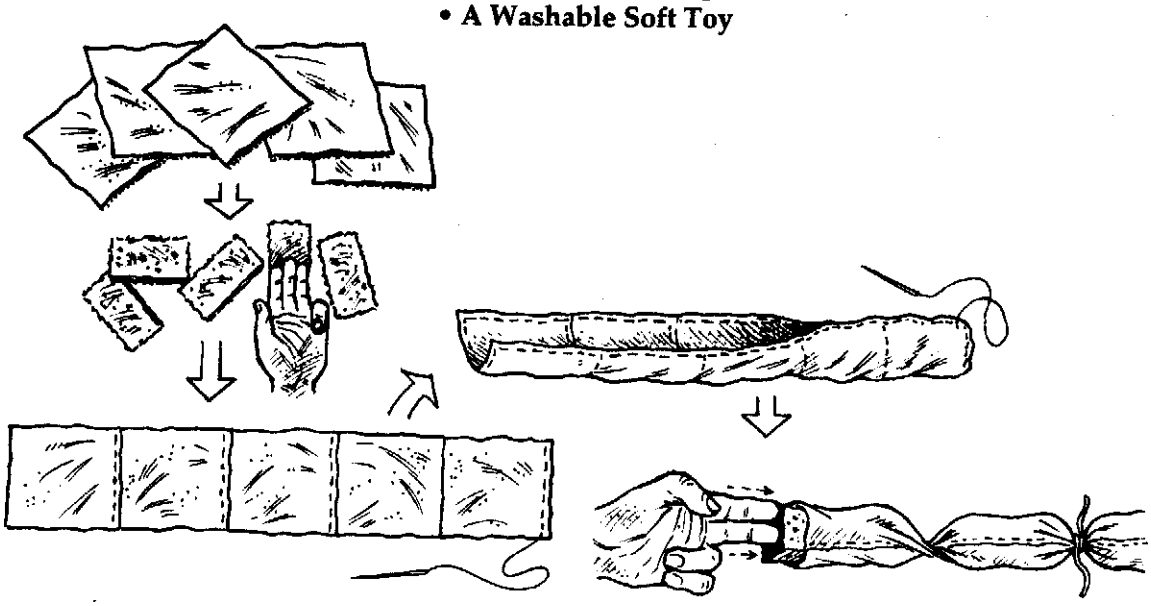
1. Put the balloon inside the button-hole. Hold on to the 'stem' of the balloon so that it does not fall completely inside the cloth-balloon.
2. Blow into the balloon till it expands so much that the ball is absolutely tight.
3. Then twist the 'stem' of the balloon several times and simply tuck it in one side of the button hole. The pressure will keep it in place. After a few hours of play, the balloon will gradually deflate. When that happens, just blow it up again.

***Warning*:** Do **not** tie a knot or use a string or rubber band to close the 'stem' of the balloon. If you do so, then it will get spoiled and you may not be able to blow it up again.

***Hygiene Note*:** The same person should blow the balloon each time... or the 'stem' should be washed with soap and water.

COLOUR SAUSAGE OR COLOUR RING

- **Colour Identification**
- **Finger-Muscle Development**
- **A Washable Soft Toy**

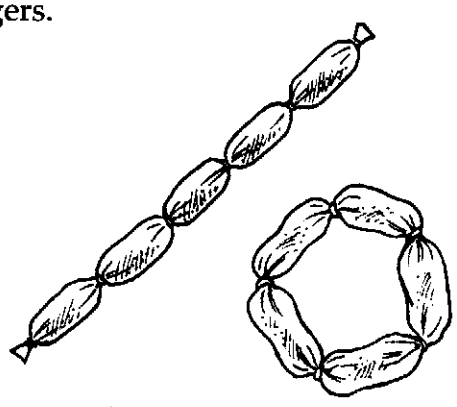


You will need

- Polyester or nylon cloth in 5 bright colours: Green, orange, yellow, red, blue
- Sponge foam... the type used in cushions, bicycles seats, etc.
- Black cord

How to make

1. Cut the cloth into squares approximately 5 in x 5 in/10½ cm x 10½ cm.
2. Cut the sponge into equal lengths of slightly less than 5 in/10½ cm. The width should be about the same as two or three fingers.
3. Stitch the cloth pieces together (side-by-side).
4. Now stitch them lengthwise into a long tube.
5. Stitch one end shut.
6. Turn the tube right-side-out.



7. Place the first sponge fingers into the end of the tube.
8. Using the black cord, firmly tie and knot at the top end of the finger so that it is separate from the next colour-section.
9. Continue till the tube is full.
10. At the end, if you want it to be a sausage, stitch the tube shut.
11. If you want to make a ring, attach the last end to the end of the first colour-section with the black cord.

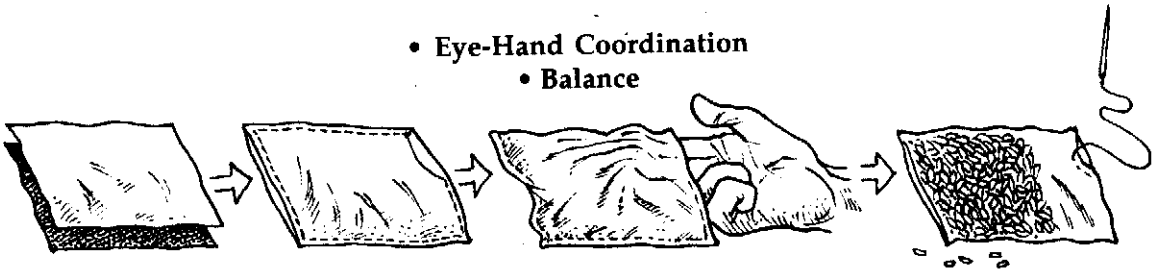
Hint: An easy way to make these is by using polyester or nylon sari-falls. Buy them in 5 colours and cut the sponge according to the dimension of the falls.

How to use

1. As a simple, safe soft toy.
2. Talk about the colours and find other objects of the same colour.
3. The ring can be used for tossing and catching or for balancing on the head while walking.

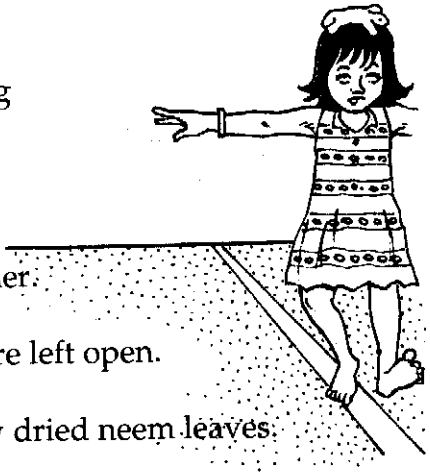
BEAN BAGS

- **Eye-Hand Coordination**
- **Balance**



You will need

- 2 pieces of cloth about 4 inches square
- A sewing machine... or very tight hand-stitching
- Some cheap quality rice
- A few dried neem leaves



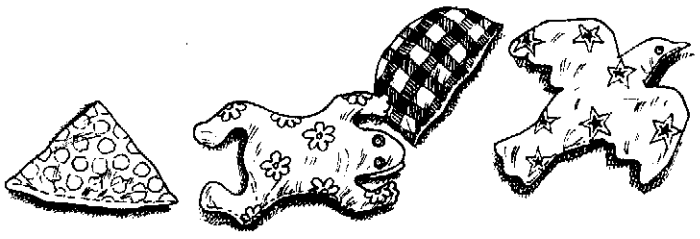
How to make

1. Put the two pieces of cloth one on top of the other.
2. Stitch them together on 3 sides.
3. On the 4th side, stitch till only about 2 inches are left open.
4. Turn the cloth right-side-out.
5. Fill the 'bag' only 2/3 full of rice and add a few dried neem leaves.
6. Hand-stitch the opening shut.
7. Now you have one bean bag.
8. You will need at least half a dozen for a group of children.
9. Try to make each bean bag in a different colour.

How to use

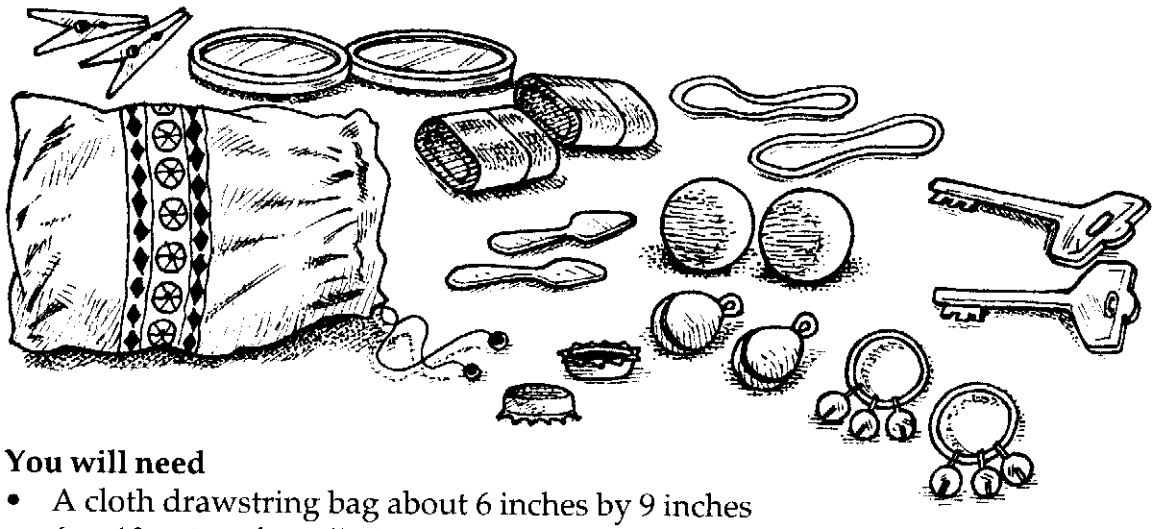
1. For **throwing** and **catching** games: Much easier for little children to catch than a ball, and does not cause confusion by bouncing or rolling away.
2. For tossing **target** practice: Throw into a basket or on shapes drawn on the ground.
3. For developing **balancing** skills: Put on head and walk along a line or squat and get up as many times as possible before the bean bag slips.

Note: Try other shapes: Round, triangular, half-circle. Cut into simple animal and bird shapes.



FEELY BAG

- **Develops Sense of Touch**
- **Pairing Objects**
- **Vocabulary Development**



You will need

- A cloth drawstring bag about 6 inches by 9 inches
- 6 to 10 pairs of small objects

How to make

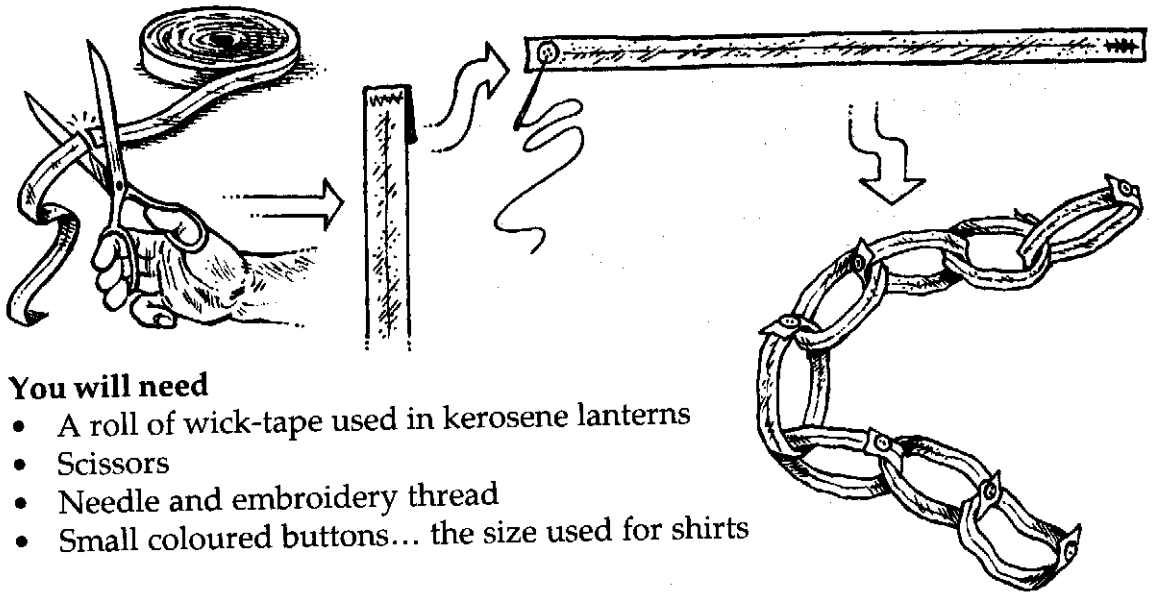
1. Put pairs of objects into the cloth bag... such as 2 clothes-clips, 2 plastic bangles, 2 tamarind seeds, 2 wooden ice-cream spoons, 2 hair clips, 2 bottle caps, 2 small balls, 2 big rubber bands, 2 shoestrings, 2 key-rings, 2 keys; etc., etc.
2. Be sure that both items in a pair are the same size and texture. The colours may be different, though.

How to use

1. Hold the bag in front of a child in such a way that he/she cannot see what is inside.
2. Ask the child to put his/her right hand into the bag and take out any **one** item.
3. Child to say what the item is, how it is used or where it is from.
4. Tell the child to hold the item in his/her left hand.
5. Then put his/her right hand into the bag again and 'feel' for the item's partner.
6. Return both items to the bag and ask a second child to do the same thing.
7. Continue till every child has had a chance.
8. From time to time, take some old objects out and surprise the children by putting in something new... maybe 2 potatoes or two small egg plants!

LAMP-WICK BUTTON-UPS

- **Small Muscle Development: Fingers**
- **Eye-Hand Control**
- **Basic Geometric Shapes**



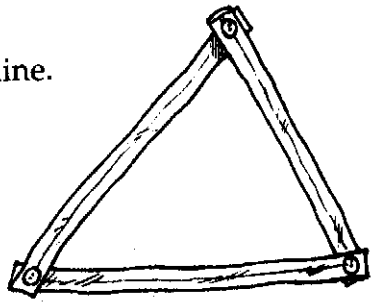
You will need

- A roll of wick-tape used in kerosene lanterns
- Scissors
- Needle and embroidery thread
- Small coloured buttons... the size used for shirts

How to make

1. Cut the wick-tape into 9 inch lengths... you will need 2 or 3 dozen pieces.
2. Do closely-sewn button-hole stitches at each end... so that the ends do not fray.
3. At one end of each piece of tape, sew a coloured button.
4. At the other end, about ½ inch in from the edge, make a button-hole and secure it with close button-hole stitches.

How to use

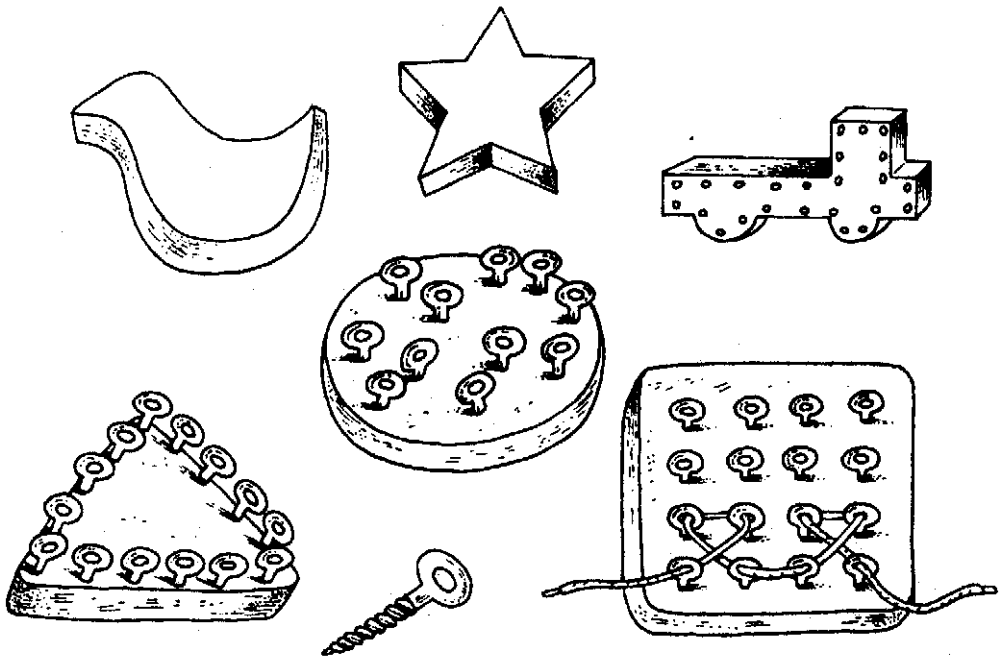


1. Attach the Button-Ups to each other in a long, long line.
2. Make a zig-zag line.
3. Use 4 pieces to form a small square.
4. 8 pieces to form a bigger square.
5. 12 pieces, 16 pieces, etc.
6. Use 3 pieces to make a small triangle.
7. Then 6 pieces, 9 pieces, etc.
8. Make a circle with a Button-Up by putting the button into its own button-hole
9. Join the circles by looping one within another to form a long, long chain.

Note: Button-Ups are washable and should be washed from time to time.

WOODEN LACING-SHAPES

- **Eye-Hand Coordination**
- **Dexterity**



You will need

- Scraps of wood cut into geometric and other simple shapes
- Sandpaper
- Several dozen eye-screws
- Lengths of metal-tipped shoe-laces or cord to thread through the 'eyes'. You could plait your own pretty-coloured cord from old plastic carry bags *(see* page 111).

How to make

1. Carefully sandpaper each piece of wood to make sure there are no splinters.
2. Mark a pattern for placement of the screws.
3. Fix a screw at each marking.
4. Tie one end of a lace to one of the eye-screws so that the shoe-lace does not get misplaced.

How to use

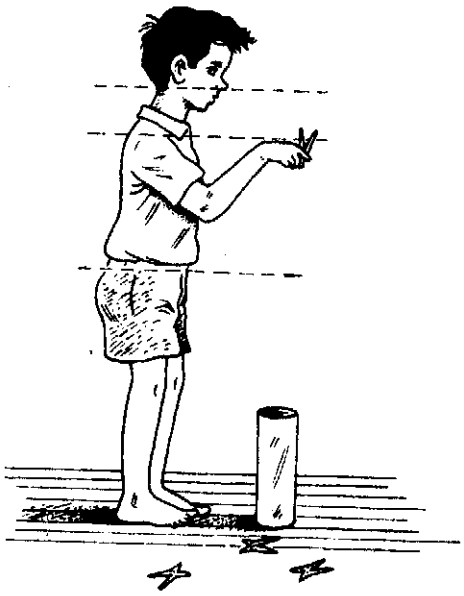
Encourage children to string the lace through all the eye-holes.

DROP THE CLOTHES-PIN

- **Eye-Hand Control**
- **Patience**
- **Perseverance**
- **Taking Turns**
- **Keeping Score**

You will need

- A tall, slim tin; large talcum powder tins are perfect.
- 8 to 12 wooden or plastic clothes-pins, in different colours if possible.

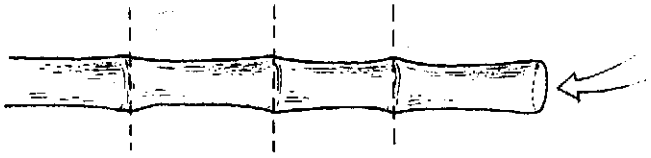


How to make

1. Cut the top of the tin and smooth the inner rim so that the children do not cut their fingers.
2. Paint the outside of the tin and add a few attractive stickers or cover it with coloured paper.

How to play

1. The tin is placed on the ground.
2. The child stands with feet together just in front of the tin.
3. He/she tries to drop a clothes-pin into the tin. The clothes-pin must be held at the waist/shoulder/nose level (depending on the age and ability of the child) and then dropped into the tin. The hand must not dip down to drop it in.
4. One point is awarded for each success.

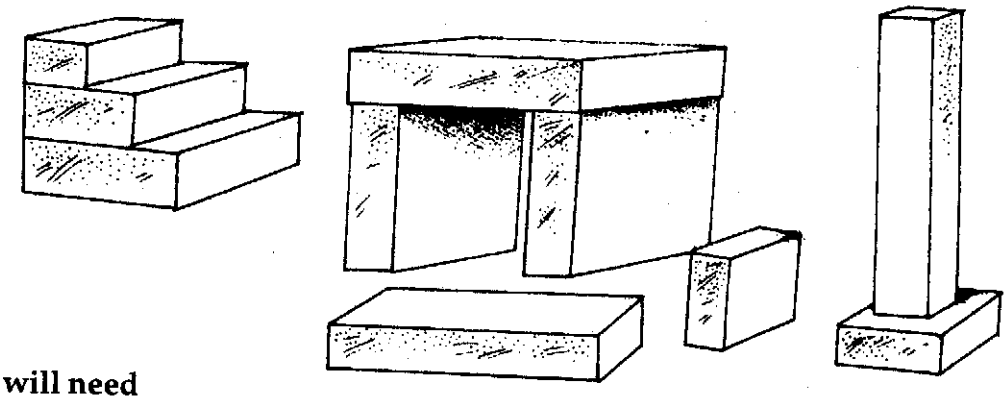


Note: This can also be made from sections of a bamboo pieces that has an opening at least as big as that of a talcum tin.

Courtesy: Pang Hung Min

BOX BUILDING BLOCKS

- **Eye-Hand Control**
- **Construction Skills**
- **Imagination**



You will need

- A collection of small cardboard boxes of soap, butter, tea-bags, toothpaste, etc.
- Old newspapers or magazines
- Cello-tape or bits of brown paper
- Silver paper or other durable coloured paper
- Fevicol/glue

How to make

1. Paste cello-tape or glue on one end of the box to close it.
2. Tear/cut sheets of newspaper into pieces about half the size of a postcard.
3. Make dozens of tightly-rolled wads from the paper. Each will be about half the size of a marble.
4. Drop a dozen or so wads to the bottom of the box. Press them down with a stick or a spoon.
5. Continue dropping and pressing till the box is tightly packed and full. Check to see that there are no bulges.
6. Seal other end shut with tape or pasted strips.
7. Carefully cover the entire box with coloured paper.
8. The edges and corners could be reinforced with coloured cello-tape or electrician's tape.

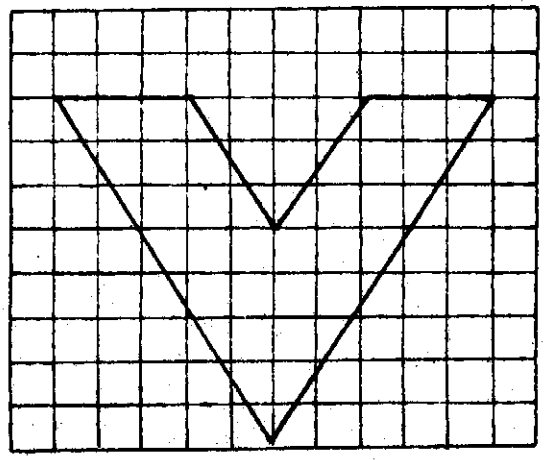
A set of 2 or 3 dozen such blocks could last for years with just a new layer of outside paper being changed once in a while. These boxes are light-weight, strong and durable.

RUBBER 'V' TILES

• **Sense of Balance and Design**

You will need

- A sheet of rubber 1 cm to 2 cm thick or else soles of old shoes or rubber slippers can be used
- A sharp knife or blade
- A stencil, the size of the pattern shown in the picture
- A thick pad of newspaper

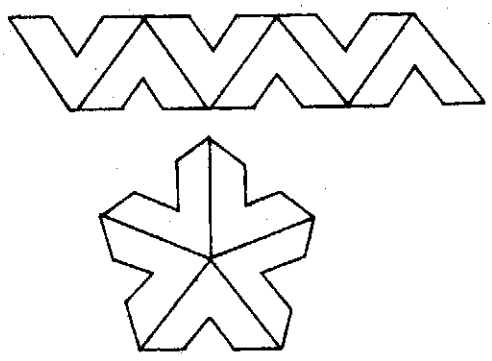


How to make

1. Trace the stencil 'V' onto the rubber sheet.
2. Place the rubber sheet on a pad of paper, so that the knife-blade does not get damaged, when cutting out the 'V'.
3. Cut out the letter 'V'. You will need 24 such pieces.

How to use

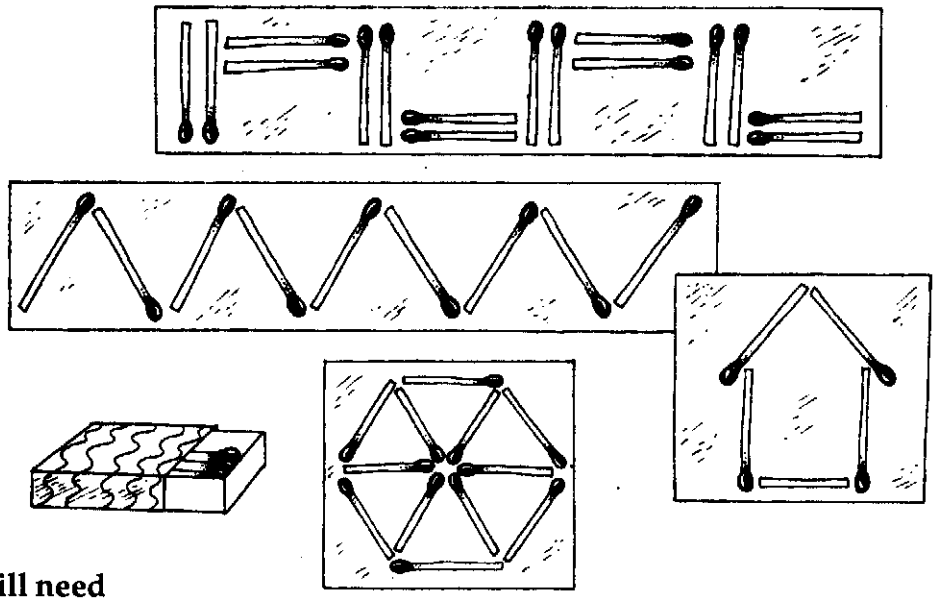
1. Children can arrange the various 'V's in a fascinating array of designs and patterns.



Note: These rubber 'V' tiles are washable, light weight, durable and easily replacable.

MATCHSTICK PATTERN CARDS

- **Pre-Writing**
- **Eye-Hand Control**



You will need

- Pieces of thick cards
- Used matches for pasting on the cards
- Several matchboxes filled with used matches. Decorate the box-tops so that they may not get mixed with 'real' matches
- Fevicol/glue

How to make

1. Cut the cards to a desired size.
2. Arrange the patterns on the cards with used matches as shown in the picture.
3. Paste with Fevicol/glue.
4. Put each in a separate, clear plastic bag, if possible. Staple or seal the opening. This set of cards can last for years.

How to use

A child picks up a pattern card of his/her choice and also a decorated matchbox. He/she makes a matching pattern on the table/floor next to the card. Children should also be encouraged to create their own designs and pictures.

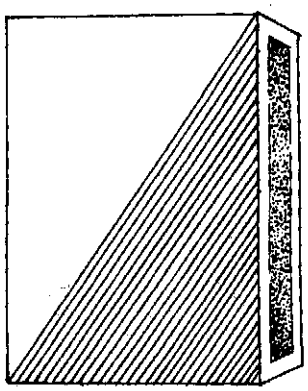
Courtesy: Loreto Day School, Sealdah

MATCHBOX MOSAIC TILE PATTERNS

- **Sense of Design**
- **Sense of Creative Control**

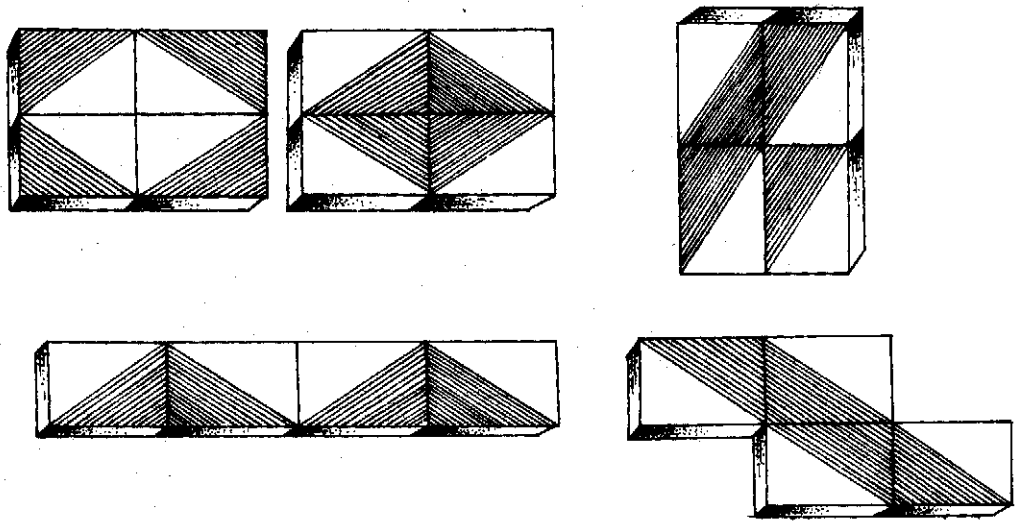
You will need

- Four to 20 matchboxes of the same size and with coloured paper pasted on top in the same arrangement as shown on right



How to use

1. For example, by using only 4 boxes covered with the pattern shown in the figure above, children can make the following designs:



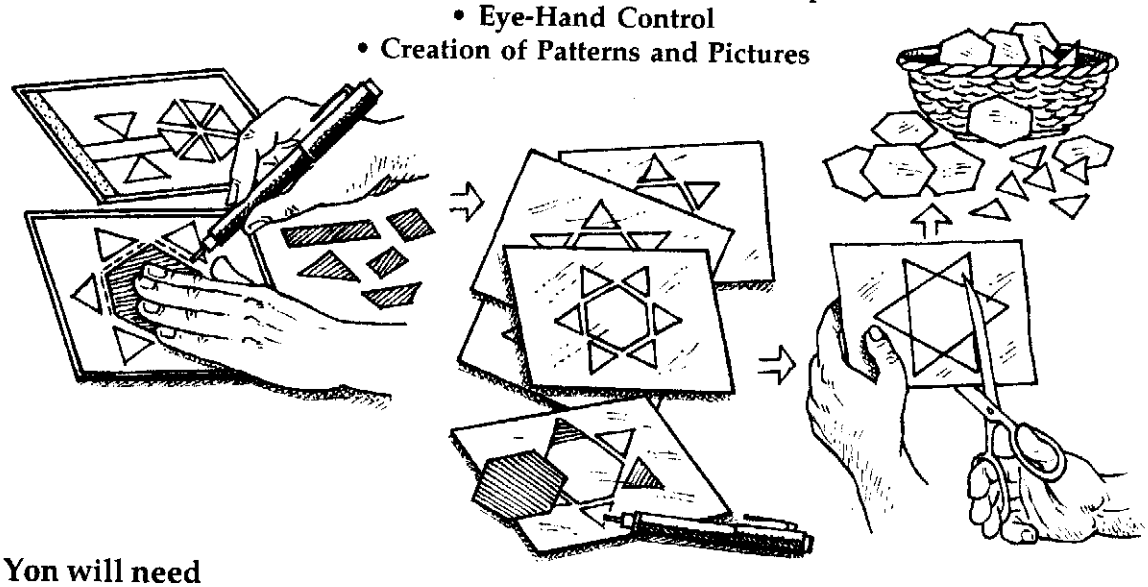
Note: 1. A few patterns as 'starters' can be stored inside the matchboxes, though it is advisable to let the children create their own designs.

2. If squared paper (graph paper) is available, a logical next step would be to invite children to create patterns with coloured pencils.

Courtesy: Government of West Bengal, ICDS projects

GEOMETRIC SHAPE PICTURES

• Familiarisation with Geometric Shapes
• Eye-Hand Control
• Creation of Patterns and Pictures

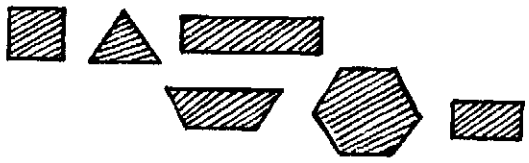


Yon will need

- A dozen pieces of light-coloured stiff card on which to draw outline pictures
- A permanent black marking pen
- Stencil shapes for these 6 shapes

Note: Old x-rays make excellent stencils.

- Stiff card in at least 3 or 4 bright colours. These are for the geometric shape pieces
- A craft-knife with a sharp blade for cutting out the pieces. If you don't have one, you could very carefully use a razor-blade or draw the shapes on card that is not too stiff, so you can cut with scissors
- Coloured cello-tape



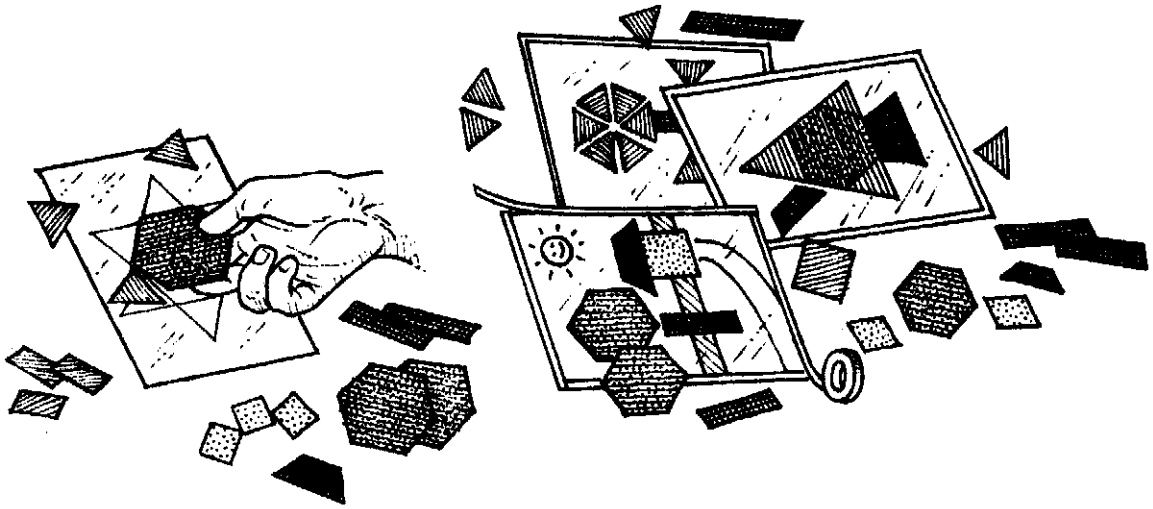
How to make

1. Draw simple outline designs and pictures on the light-coloured cards by tracing round your stencil shapes. You need to use the stencils for this so that the picture outlines and the coloured geometric shape pieces are exactly the same size.
2. Now use the brightly coloured card. Draw round each stencil-shape at least 20 times on each colour.

3. Cut the shapes out with a craft-knife or scissors.
4. So that they won't get lost, keep the small geometric shapes in a small basket or a soap-box with a lid.
5. To make the picture outline cards more long-lasting, cover all 4 sides with coloured cello-tape.

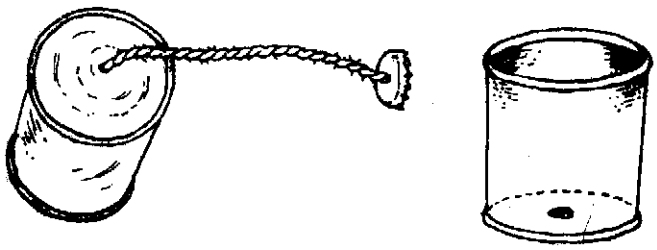
How to use

1. Take one of the picture-cards and a handful of geometric shapes.
2. Point to one of the shapes in the picture. Ask a child to find a coloured one from the pieces and put it on the picture. Continue, shape-by-shape, till the picture is complete.
3. Give picture-cards to pairs of children so they can independently cover their pictures with the shapes.
4. Later, encourage children to copy the picture NEXT TO the picture-card instead of directly on it.
5. And later, encourage children to create their own geometric shape pictures and patterns.



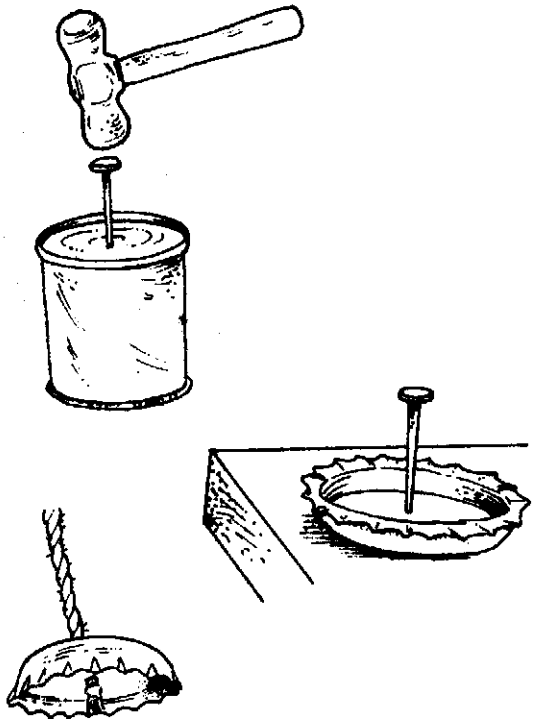
TIN CATCH-CATCH

- **Eye-Hand Control**
- **Development of Dexterity**
- **Concentration**
- **Perseverance**



You will need

- A small empty tin with the top removed and the inner rim smoothened, so that children do not cut their fingers
- A soft-drink bottle cap
- A length of string (a pretty-coloured string can be made from an old plastic carry-bag (*see* page 111)
- A hammer, a nail and a block of wood

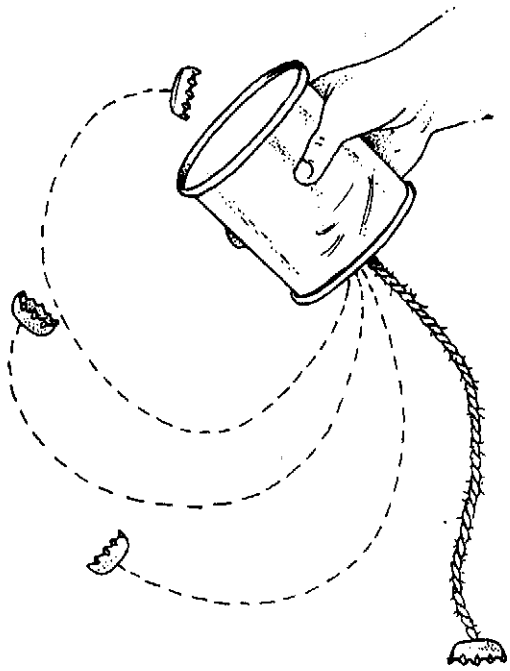


How to make

1. Puncture a hole in the centre of the bottom of the tin.
2. Pull the string partly through the hole. Tie a knot at the end so that if pulled out, the knot prevents the string from going all the way through.
3. Make a hole in the centre of a bottle cap.
4. Pull the other end of the string through this hole, and fix it with a knot.
5. Now the cap is dangling from the string which is hanging down from the bottom of the tin.

How to play

1. Hold the tin up to shoulder height and swiftly dip it downwards in order to 'catch' the cap.



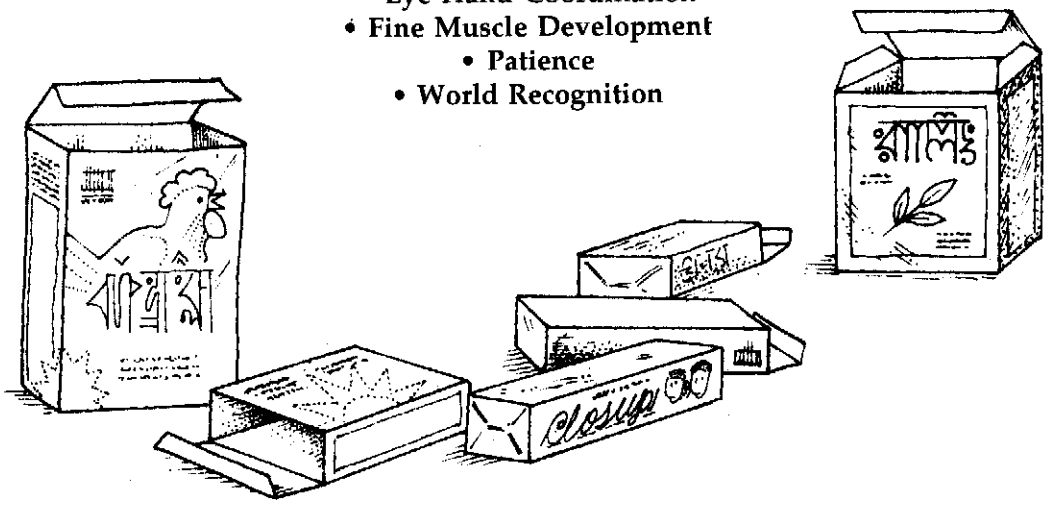
Variations

2. Try with 2 strings of the same length and different lengths and with 2 bottle caps.

Note: The string should be about twice as long as the height of the tin. The tin and bottle cap look very attractive when painted in bright colours or the tin could be covered with coloured paper.

CONSUMER PRODUCT PICTURE PUZZLES

- **Eye-Hand Coordination**
- **Fine Muscle Development**
- **Patience**
- **World Recognition**

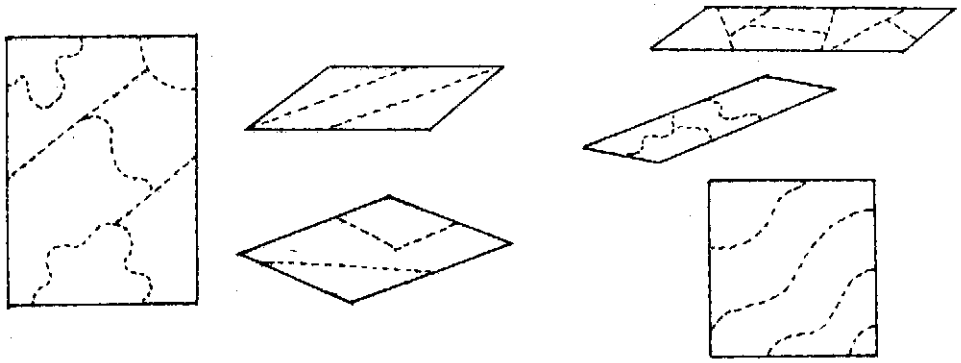


You will need

- A collection of consumer product boxes made of stiff card, preferably laminated

How to make

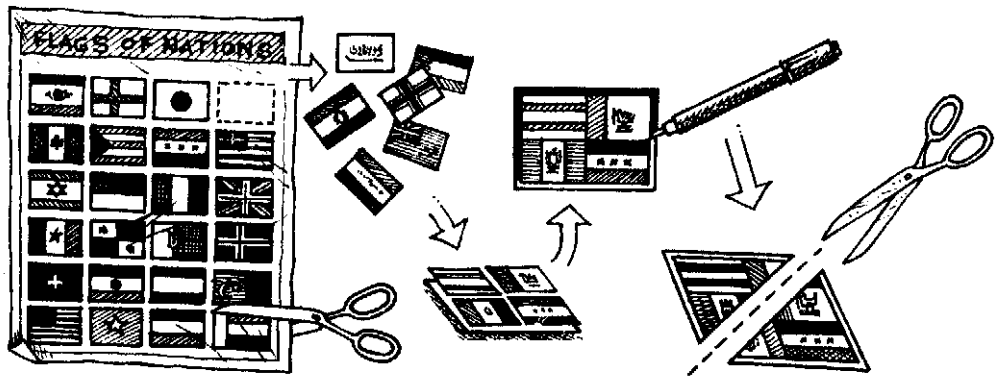
1. Cut out the front panels; sometimes the back panels which have big words or interesting pictures can be used too.
2. Cut each panel into several pieces.



3. Store each picture in a separate envelope or plastic bag.

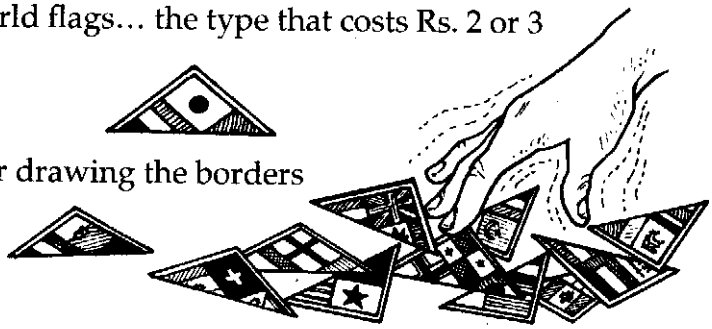
PATTERN-MATCHING WITH FLAGS

- **Eye-Hand Control**
- **Pre-Reading Pattern-Matching Skill Development**



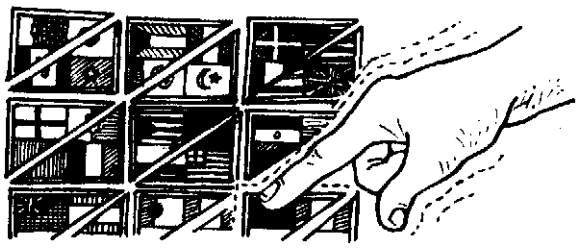
You will need

- A cheap bazaar chart of world flags... the type that costs Rs. 2 or 3
- Stiff card
- Glue
- Scissors
- A coloured marking pen for drawing the borders
- A small scale



How to make

1. Cut out all the little flags.
2. Be sure to cut off the printed names and use only the pictures.
3. On a piece of card, paste four flags together into rectangular shapes.
4. Use a marking pen to draw a coloured border around them.
5. When they have dried, cut out the rectangle shapes.
6. Using a scale, draw a diagonal line across the back of each shape.
7. Cut along the line.

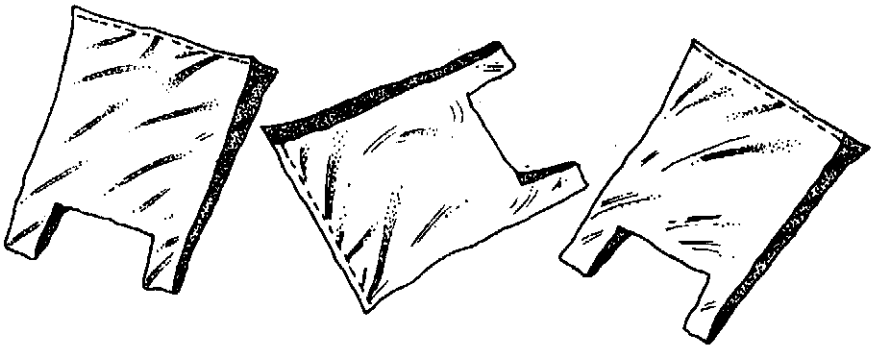


How to use

1. Mix up all the half-pieces
2. Turn them right-side-up
3. Ask children to join each half to its partner so that pieces do not get lost, you can keep them in plastic ration-card holders, covered soap-boxes, etc.

PLASTIC BAG CORDS AND LACES

- **General Classroom Use**
- **Shoe-Laces**
- **Hair Ribbons**



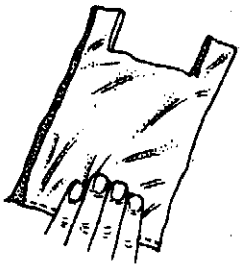
Plastic carry-bags: rubbish or resource?

You will need

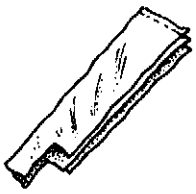
- Soft plastic carry-bags
- Scissors

How to make

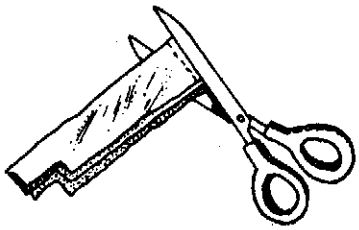
1. Hold the bag upside down.



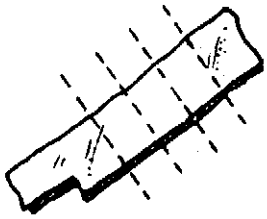
2. Fold it in half, 3 or 4 times lengthwise.



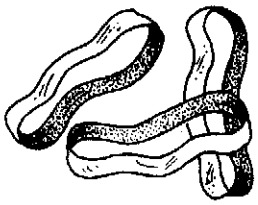
3. Cut off the sealed end.



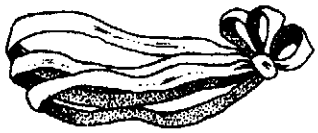
4. Cut the rest of the length of the folded bag into strips twice the width of your finger (with practice, you can cut 3 or 4 bags folded together).



5. When you open a strip, you will get a loop as shown.

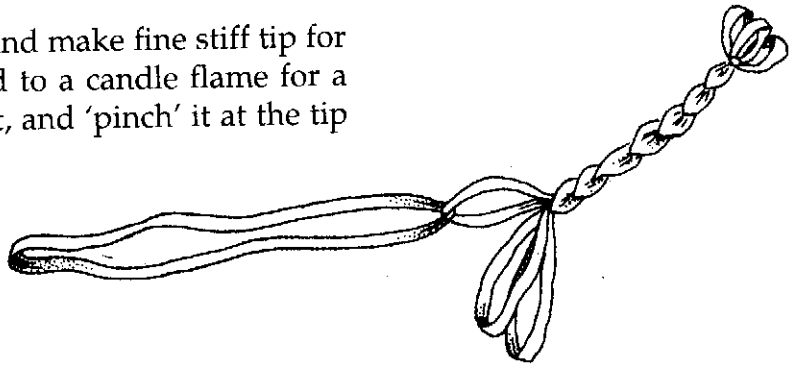


6. Tie 3 loops together at the top.



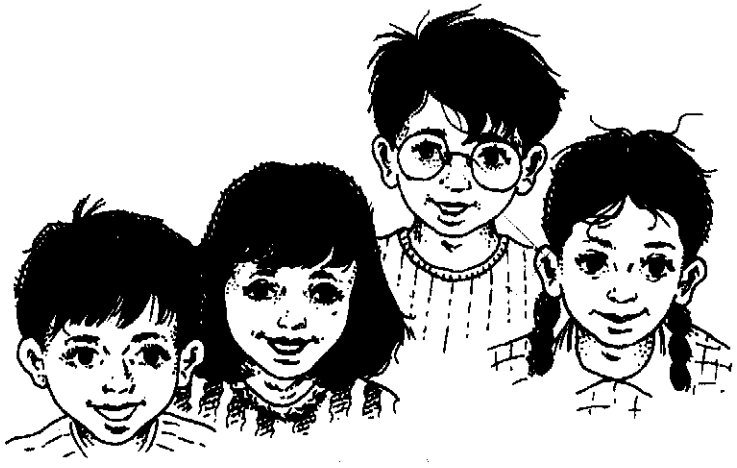
7. Plait tightly.

8. If you need a longer cord, add more loops with a slip-knot.
9. To seal at the end, and make fine stiff tip for lacing, hold the end to a candle flame for a second, withdraw it, and 'pinch' it at the tip after it cools a bit.



How to use

1. Once the children are shown how to do this with old black plastic bags, they can make their own shoe-laces!
2. Simple enough for children to make by themselves and helps to keep the environment clean too!

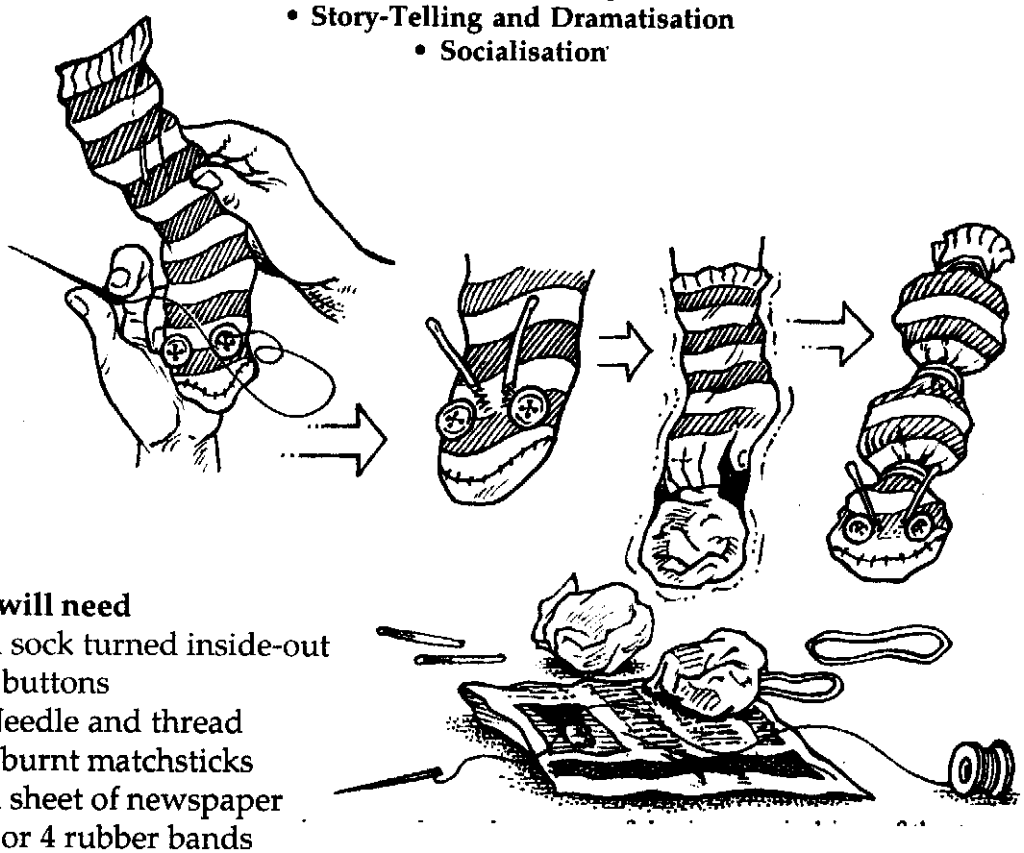


Section IV

SOCIAL STUDIES, ROLE-PLAY AND PLAY

SOCK AND NEWSPAPER CATERPILLAR-PUPPET

- **Vocabulary Development**
- **Story-Telling and Dramatisation**
- **Socialisation**



You will need

- A sock turned inside-out
- 2 buttons
- Needle and thread
- 2 burnt matchsticks
- A sheet of newspaper
- 3 or 4 rubber bands

How to make

1. Sew two buttons along the curve of the inner-stitching of the toe-section... so that they look like the caterpillar's eyes.
2. Above that, attach two burnt matchsticks by stitching them above the curver... so that they look like feelers or antenna.
3. Crunch up a piece of newspaper into a child's fist-size ball.
4. Stuff it into the toe-part of the sock... so that it looks like the caterpillar's head.
5. To keep it in place, twist a rubber band just below the 'head'.
6. Make another newspaper ball and stuff it into the sock.
7. Keep it in place with another rubber band.
8. Make a third and, if the sock is long enough, a fourth paper ball section for the caterpillar's body.

How to use

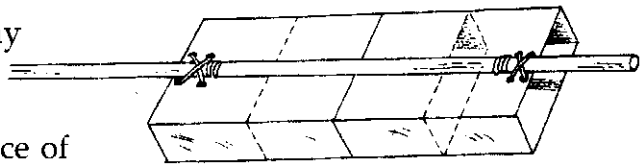
1. The caterpillar can be your 'assistant' and help you to do things like checking to see if children's fingernails are clean, if their hair is neat and tidy, watching to see who finishes a task first, deciding who has the best handwriting, giving health messages like "Be sure to wash your hands before you eat tiffin!" etc.
2. It can tell its life-story... about how it was born from a butterfly's egg, etc.
3. It is a nice, washable soft toy for small children... but you must be sure the buttons are sewn on tightly. To wash, just open the rubber bands and take out all the newspaper. For very small children, do not use the matchstick feelers.

PUPPET WITH MATCHBOX HEAD AND BODY

- **Vocabulary Development**
- **Story-Telling**
- **Dramatisation**
- **Socialisation**

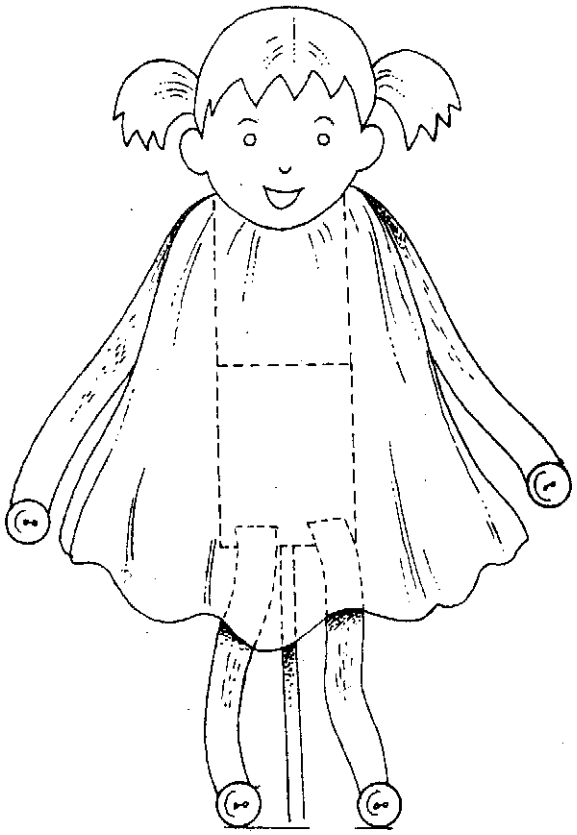
You will need

- Two matchbox lids and one tray
- A broomstick
- Four small shirt buttons
- A small handkerchief or a piece of cloth
- Narrow satin or nylon ribbon
- A face drawn on a card and coloured
- Fevicol, needle and thread



How to make

1. Apply Fevicol on the back and long sides of the matchbox tray.
2. Push lid 1 and lid 2 half way over each end of the tray. Press gently till dry.
3. Attach the broomstick to the back of the boxes. Use a big needle and strong thread.
4. Tie or stick or stitch a piece of cloth around the bottom of lid 1. Cut a small opening on each side, so that the ribbon ends come out.
5. Attach the ribbon ends to the top of lid 2 to make the arms. Attach the 2 other ribbon pieces to bottom of lid 2 to form the legs.
6. Sew buttons at the ends for hands and feet. Paste the face on lid 1.



Courtesy: Loreto Day Schoo, Sealdah

PUPPET OR DOLL WITH MATCHBOX HEAD

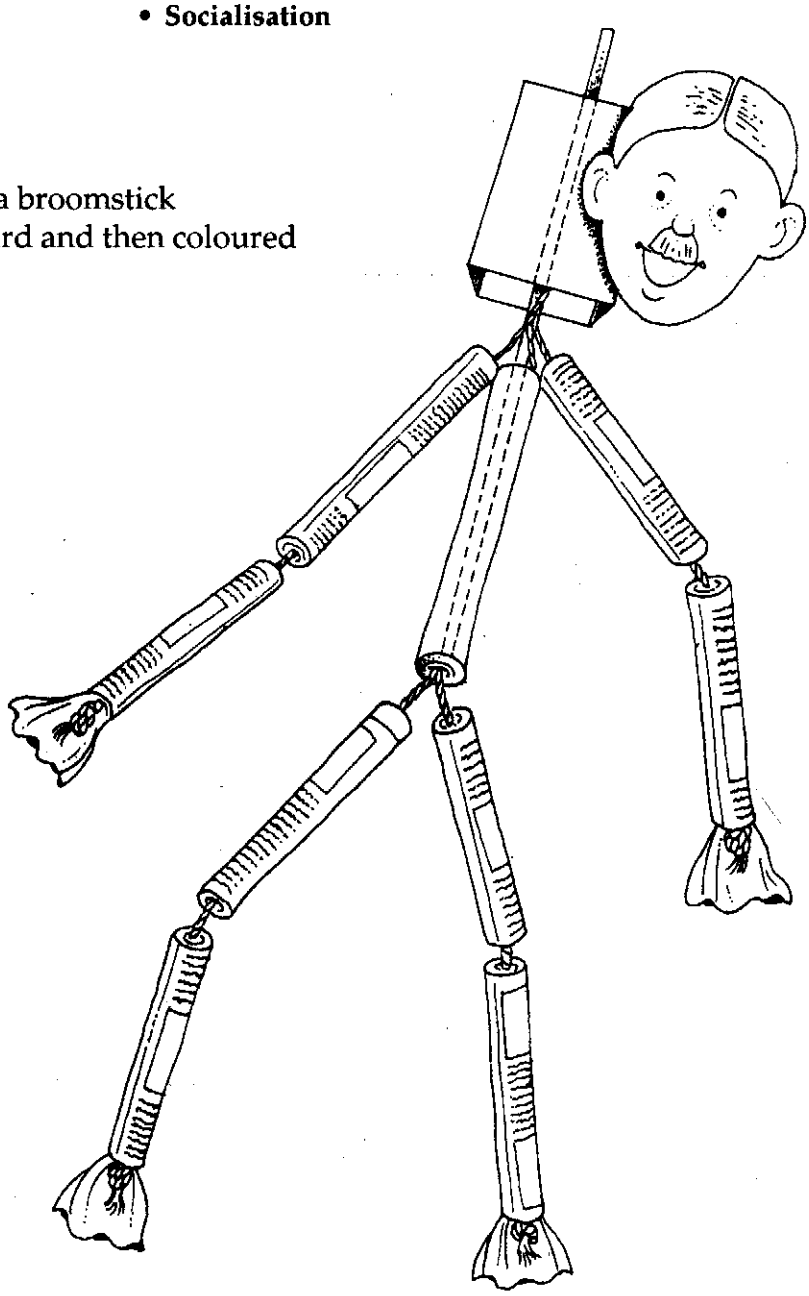
- **Vocabulary Development**
- **Story-Telling**
- **Dramatisation**
- **Socialisation**

You will need

- Newspapers
- Rope
- A matchbox lid and a broomstick
- A face drawn on a card and then coloured
- Fevicol

How to make

1. Fix with Fevicol a broomstick inside the entire length of a matchbox lid; two-thirds of it should be sticking out below. Later this will be fixed in the centre of the body roll.
2. Paste the head to the matchbox with Fevicol.



3. Take 9 sheets of newspaper and roll each separately around a pencil. Paste the last layer of paper with Fevicol. Remove the pencil by sliding it out.
4. Cut sheets of newspaper into long strips of 7 to 12 cm wide.
5. Tightly roll a strip around a pencil. Paste with Fevicol the outside edge. Push the pencil out.
6. Make 9 such rolls.
7. Pull a long string through 2 rolls to form an arm. Tie a knot at the 'hand' end. Tie the centre of the string round the broomstick 'neck' and thread the rest of it through 2 more rolls to form the other arm. Tie a knot for the other hand.
8. In the same way, make the legs and feet. The string for the legs must be pulled up through the 'body' roll and knotted round the 'neck' broomstick at the top. This makes the body roll the centre of gravity for the doll. If you want to make it into a stick-puppet, then use a stronger and longer stick.
9. Paste the face on the front of the matchbox lid. Add clothes made from coloured paper, scraps of cloth or even colourful bits of old plastic carry bags.

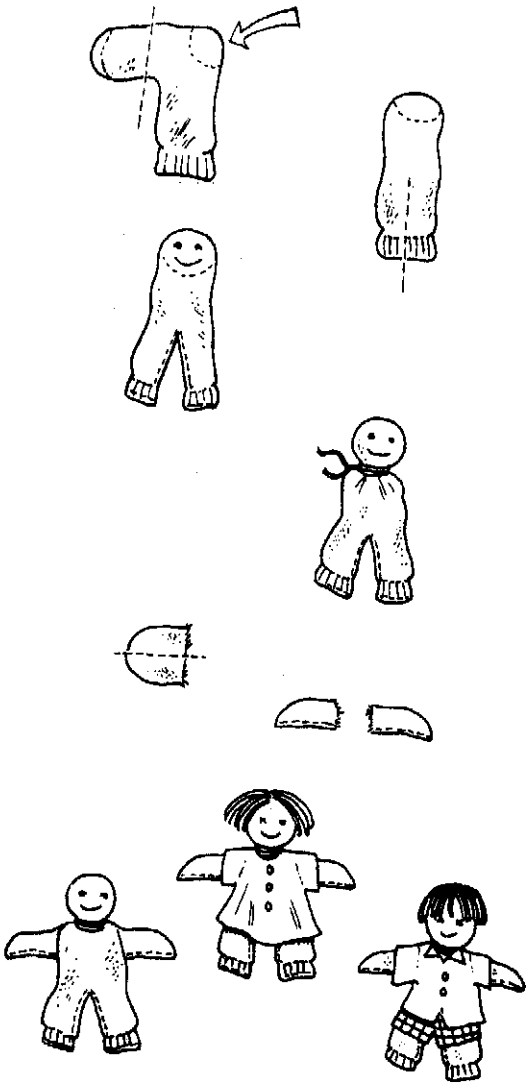
Courtesy: Loreto Day School, Sealdah

SOCK DOLLS

• Imagination
• Role Play
• Verbal Expression
• Sense of Security and Contentment

You will need

- Old socks
- Scissors
- Cotton/sponge/rags
- String
- Black wool
- Needle and thread

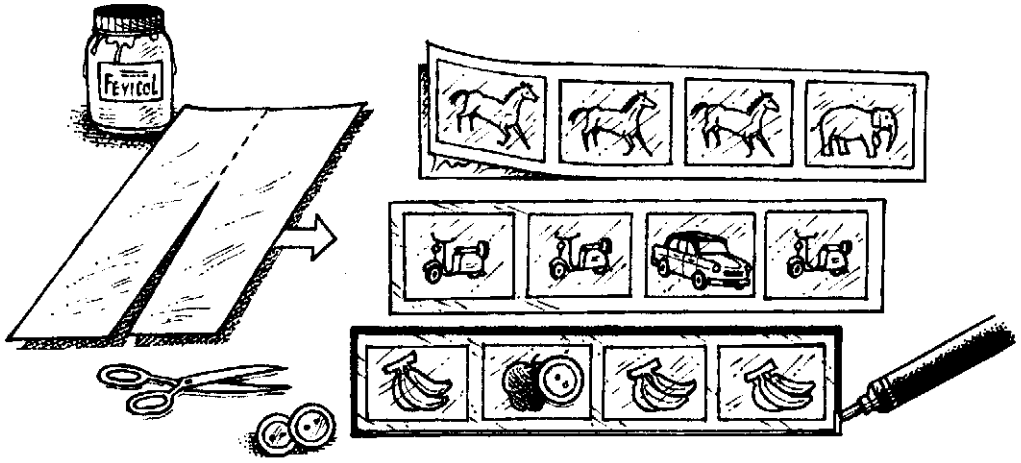


How to make

1. Cut off the toe part of an old sock.
2. Turn the sock around and cut it about half way up the centre.
3. Turn the sock inside-out and back-stitch along the bottom and centre cut to form the legs. Turn right-side out.
4. Embroider or paint a face.
5. Stuff the legs and body with cotton or sponge or rags (sponge is best, because it is more cuddly and washable). Sew up the opening behind the face.
6. Tightly tie a string around the neck to form the head.
7. To make the arms, cut the toe of the sock in half.
8. Turn the two pieces inside-out and do a back-stitch along the long sides. Leave the end open for stuffing. Turn each piece right-side out and stuff them.
9. Sew the arms onto the back of the body, just below the head.
10. Stitch or paste black wool on the head for the hair and make some clothes for the doll to wear.

ODD-MAN-OUT STRIPS

• **Pre-reading Visual Discrimination**



You will need

- Dozens of strips of piece-board or very heavy card about 2" x 10"
- Collections of small pictures... such as those found on cheap charts of Animals, Fruits, Flowers, Transport, etc. If using chart-pictures, you will need 4 copies of each chart
- Fevicol
- Scissors
- A craft knife with a sharp blade for cutting the piece-board
- A black marking pen or coloured cello-tape to make borders around the strips and between the pictures on each strip
- Some buttons, small stones or big seeds to use as markers

How to make

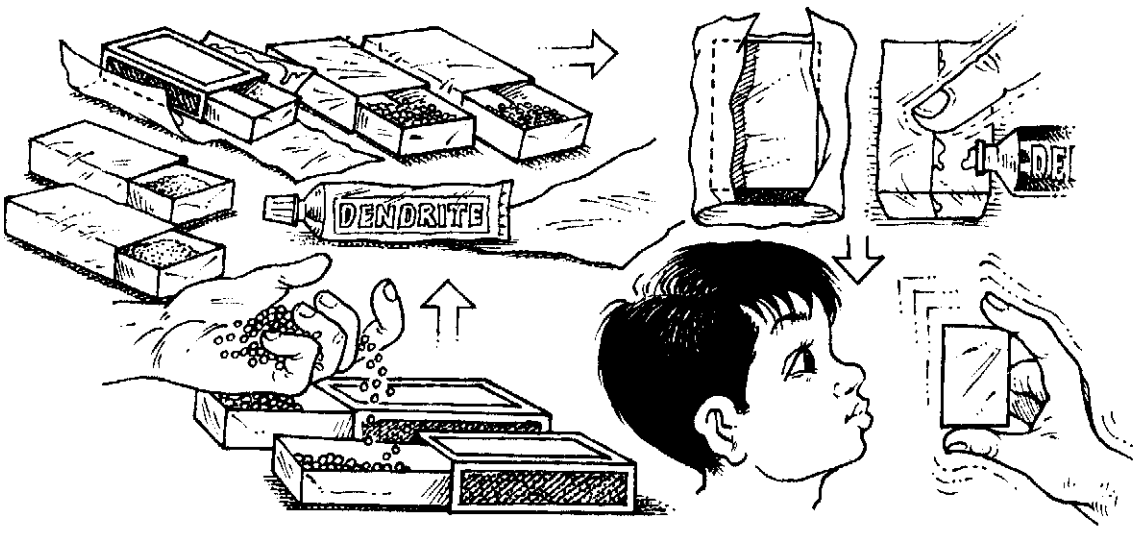
1. Cut the piece-board into strips 2 inches wide and 10 inches long.
2. Paste three 'same' and one 'different' picture on each strip.
3. Rotate the place where the 'different' picture is placed... so that it is not *always* the 3rd one or the last one.
4. Use a marking pen or coloured cello-tape to make a line between each picture and a border round each strip.

How to use

1. Look carefully at each strip and decide which picture or design is 'different'.
2. Put a marker on the 'different' one.

SOUND-MATCHING BOXES

- **Auditory Discrimination**
- **Sorting/Matching Skills**
- **New Words Like: Same, Different, Soft, Loud, Shake, Listen, Partner**



You will need

- 12 empty cardboard matchboxes... (wooden ones will break) or cheap plastic containers for 'khaini' and 'chuna'... all of the same colour and thick enough so whatever is put inside them cannot be seen
- A tube of Dendrite gum
- Laminated brown paper for the matchboxes. This is very long-lasting and not easily soiled by use
- 5 different 'things' to put in the boxes: sand/very small stone chips/dal/rajma beans, etc. (The 6th pair of boxes will be kept empty and will not make any sound)

How to make

1. If using matchboxes, measure and cut laminated brown paper into 12 pieces like the pattern shown above. Keep one pair of boxes empty and fill the other pairs about 1/3 full of 5 different things that will make a sound. Close the boxes, mix them up and see if, by shaking and listening, you can arrange them in matching pairs. If the sounds made are too close to tell apart, then change the filling of one pair. Finally, apply Dendrite all over the boxes and cover them with brown paper.

2. If using the 'tamac' boxes, first seal shut with Dendrite the lids to the small bottom compartments for 'chuna'. Seal shut the top lids of one pair of empty boxes. Fill the others as per the above instructions for matchboxes.

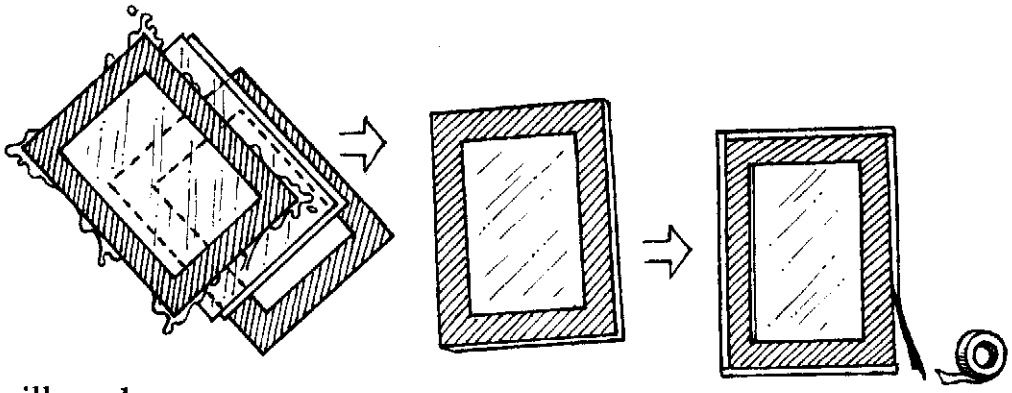
Note: It is important that all the boxes LOOK exactly the same. The only difference is to be in the SOUNDS they make when shaken.

How to use

1. Select only three pairs that have very different sounds.
2. Ask the children to look at them and tell you if they all look the same.
3. Tell children that you will shake a box and see if it makes a sound.
4. One-by-one, shake all six boxes.
5. Ask if there were any same-same sounds.
6. Pick up one box. Tell children you will shake it and then ask them to help you find its partner.
7. One-by-one, shake the others till the children tell you which one is the partner.
8. Keep those two aside.
9. Pick up one of the remaining four boxes and search for its partner.
10. Check the last two by shaking them to be sure they make the same sound. Of course, if you have an empty-box pair, it will be the pair that makes **no sound.**
11. Add a pair each day till all six pairs are being sorted into pairs that make the same sounds. .
12. Now, small groups of children or individual children can do this on their own.

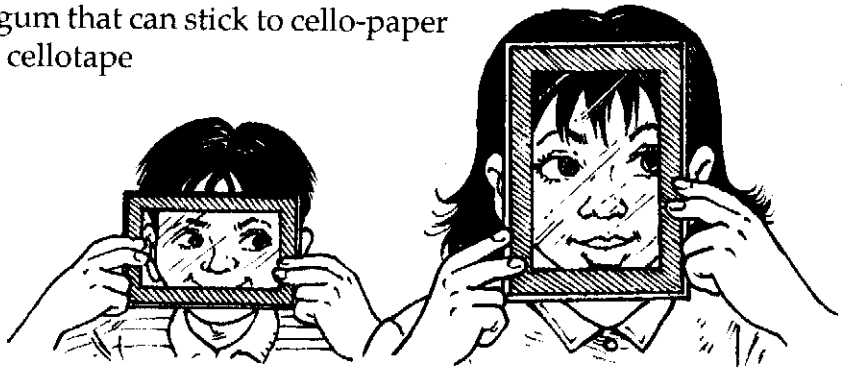
COLOUR WINDOWS

- **Colour Recognition**
- **Colour Blending**
- **Development of Vocabulary and Imagination**



You will need

- Sheets of red, blue and yellow cellophane paper
- Thick card paper... mount-board/box lids/side of a cardboard carton
- A craft knife with a sharp blade
- Dendrite or other gum that can stick to cello-paper
- A roll of coloured cellotape



How to make

1. Cut window-frames of an equal size... about 6 inches wide and 7 inches long with borders 1 inch wide so that they look like window frames.
2. You will need 6 frames to make 3 windows.
3. On the inside of one frame, gum a doubled sheet of cello-paper.
4. Now gum the 2nd frame over the 1st one and you have a complete **colour window**.

Note: Instead of gumming, you could staple or stitch the windows.

5. To make the window stronger, stick coloured cello-tape all round the outside edges.

How to use

1. As children look through the coloured windows, their world turns red, yellow or blue! This is a source of endless delight and amazement.
2. Next, ask them to look through two windows at-a-time and say what colours they see:

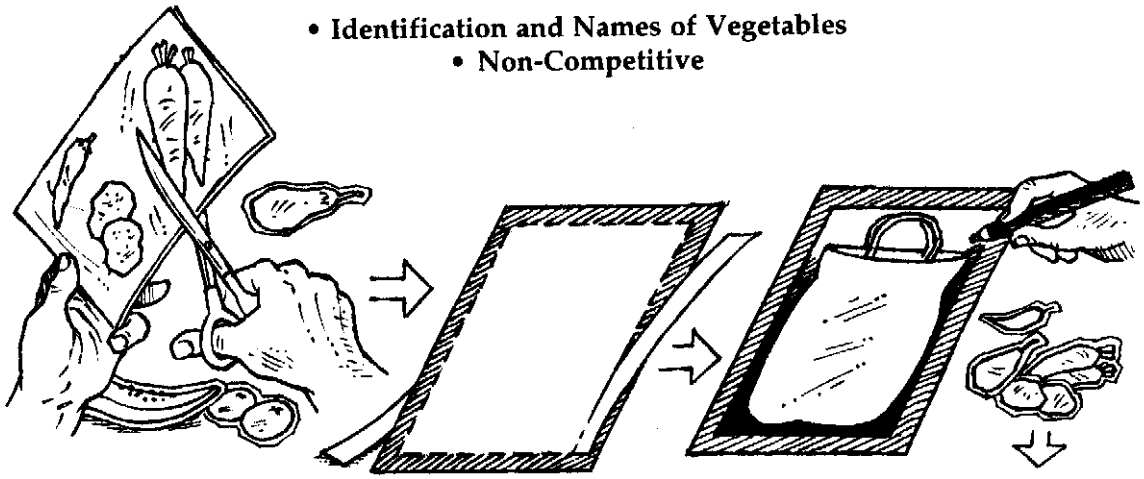
Red + Yellow = Orange

Blue + Yellow = Green

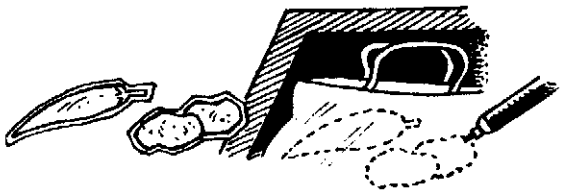
Red + Blue = Purple

VEGETABLE SHOPPING BOARDGAME

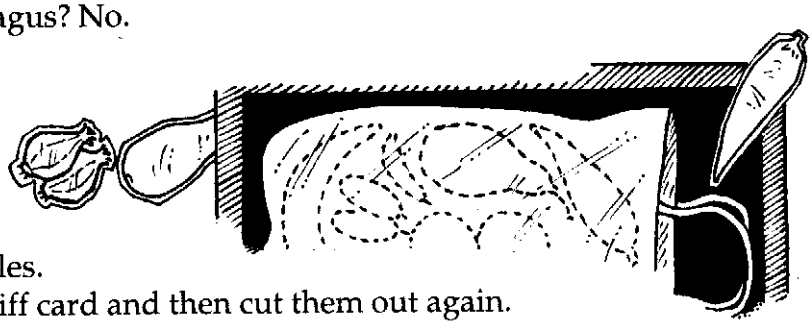
- **Identification and Names of Vegetables**
- **Non-Competitive**



You will need



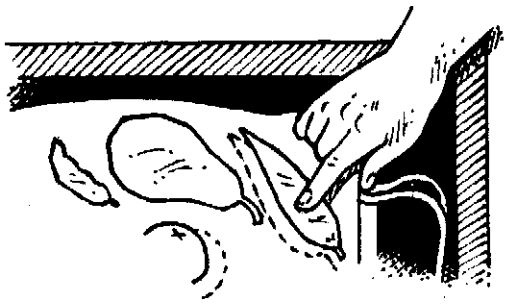
- An old Ludo board or cover of a hard-cover register/file
- A sheet of light-coloured chart-paper
- A set of coloured pens
- A few pieces of stiff card
- A chart of vegetable pictures. Try to get one with nice, large pictures... and only use the pictures of locally-available or commonly-known vegetables. Carrots? Yes. Asparagus? No.
- Glue
- Scissors



How to make

1. Cut out the vegetables.
2. Paste each one on stiff card and then cut them out again.
3. Cut the chart-paper to the size of the inside of the Ludo board.
4. Draw a large market-bag on it and colour the area behind the bag.
5. Using the cut-out vegetable pieces as stencils, draw around each one with a black pen so that their outlines cover the surface of the market-bag.
6. Paste the chart-paper on the inside surface of the Ludo board.

How to use



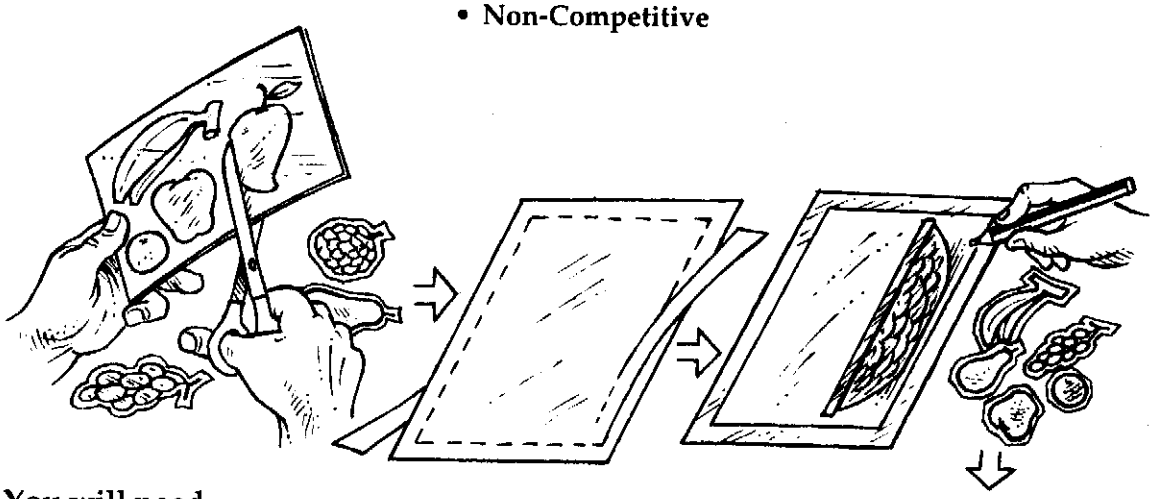
1. One to three players or a small group can divide the vegetable pieces amongst themselves.
2. The first player says the name of one of his vegetable-cards and puts it on top of the matching vegetable shape in the market-bag.
3. The second player does the same.
4. Play continues till the market-bag has been filled.

For older children

1. Print the names of the vegetables on the back of the pieces.
2. Turn the pieces so only the name-side can be seen.
3. Children can take turns **reading the names** and then putting the pieces on the market-bag.

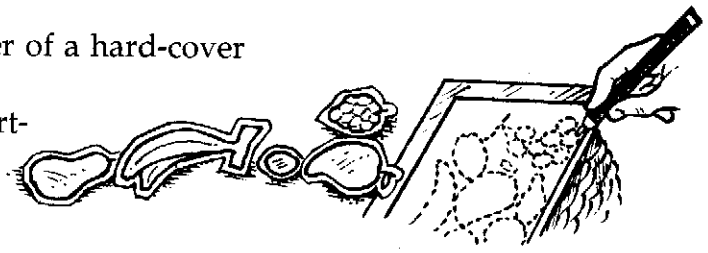
FRUIT-BASKET BOARDGAME

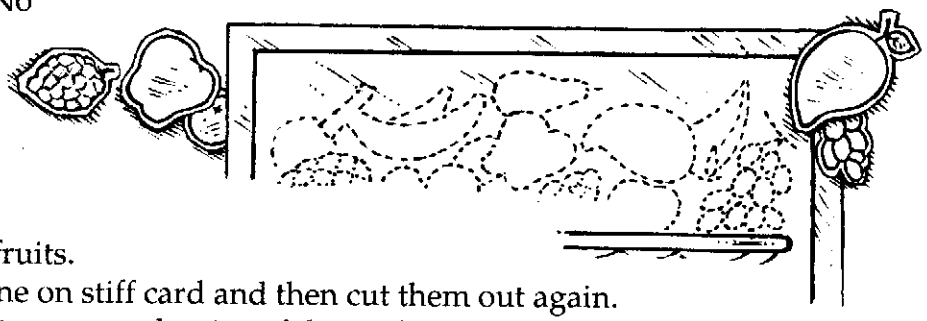
• **Identification and Names of Fruits**
• **Non-Competitive**



You will need

- An old Ludo board or cover of a hard-cover register/file
- A sheet of light-coloured chart-paper
- A set of coloured pens
- A few pieces of stiff card
- A chart of fruit pictures. Try to get one with nice, large pictures... and only use pictures of locally available or commonly known fruits. Apples? Yes. Peaches, Kiwi-fruit? No
- Glue
- Scissors

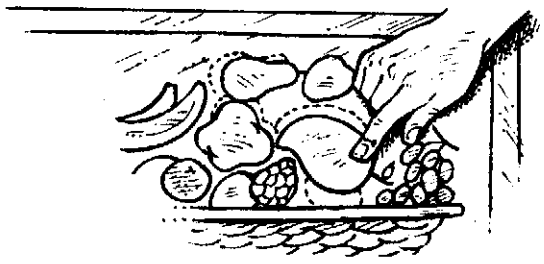




How to make

1. Cut out the fruits.
2. Paste each one on stiff card and then cut them out again.
3. Cut the chart-paper to the size of the Ludo board.
4. Draw a large fruit-basket on it and colour the area behind the basket.
5. Using the cut-out fruit pieces as stencils, draw around each one with a black pen so that their outlines cover the inside of the fruit-basket.
6. Paste the chart-paper on the inside surface of the Ludo board.

How to use



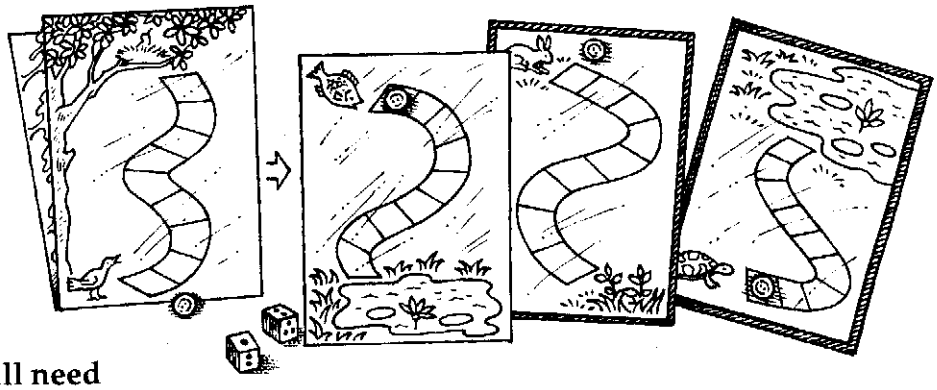
1. One to three players or a small group can divide the fruit pieces amongst themselves.
2. The first player says the name of one of his fruit-cards and puts it on top of the matching fruit shape in the fruit-basket.
3. The second player does the same.
4. Play continues till the fruit-basket has been filled.

For older children

1. Print the names of the fruits on the back of the pieces.
2. Turn the pieces so only the name-side can be seen.
3. Children take turns **reading the names** and then putting the pieces in the fruit-basket.

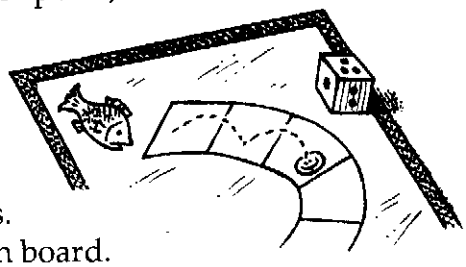
ANIMAL HOMES BOARDGAME

- **Vocabulary Development**
- **General Knowledge**
- **Counting up to 3**
- **Development of Socialisation Skills: Taking Turns**



You will need

- A dice on which you have changed the markings so that there are two 1s, two 2s and two 3s
- Old Ludo boards or hard file covers... you will need 4 pieces
- Light-coloured paper same size as the boards
- Cut-out pictures or drawings of 4 animals and their homes: Turtle and pond, rabbit and hole, bird and nest, fish and river or pond, etc.
- Coloured pens or crayons
- Glue
- A button or marker for each player



How to make

1. Paste coloured paper to cover the old boards.
2. Draw or paste an animal at one corner of each board.
3. Draw or paste the animal's home in the diagonally opposite corner.
4. Draw a pathway from the animal to its home... 9 steps on each path.

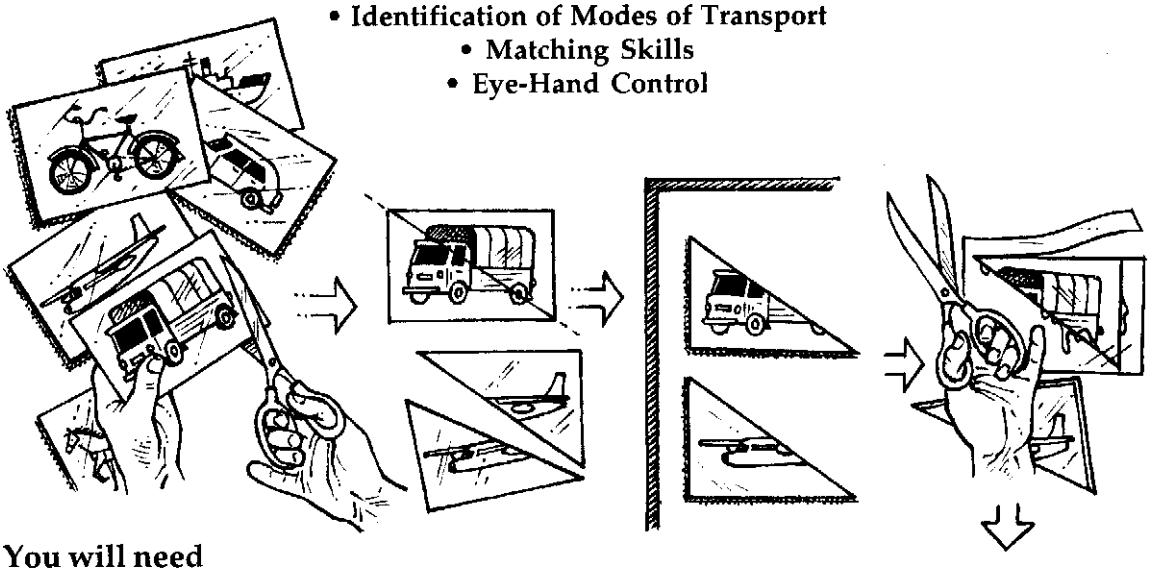
How to use

1. Players take turns rolling the dice and moving their button/marker according to the number shown on the dice.
2. Winner is the first animal to get home.

Note: For older children, you can increase the length of the path to 20 or so steps and use an ordinary dice with dots for the numbers 1 to 6.

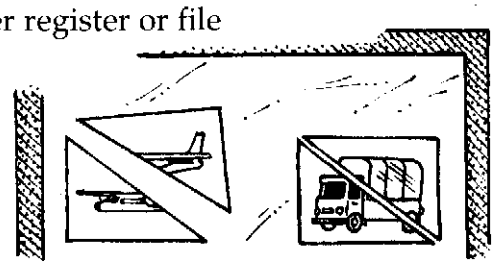
TRANSPORT MATCHING-BOARD

- **Identification of Modes of Transport**
- **Matching Skills**
- **Eye-Hand Control**



You will need

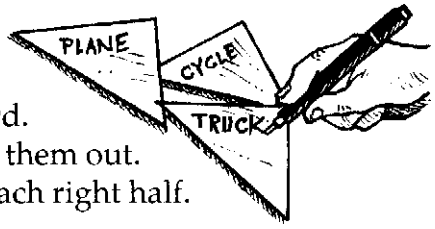
- An old Ludo board or cover of a hard-cover register or file
- A sheet of light-coloured chart-paper
- A few pieces of stiff card
- A black pen
- Scissors
- Glue
- A scale



- A chart of modes of transportation. Try to get one with large, colourful pictures... and only use pictures of locally available or commonly known modes of transport. Ambulance? Yes. Trams, double-deck buses? No... unless you live in Kolkata

How to make

1. Cut out the appropriate transport pictures in such a way that all the pieces are rectangles of the same size.
2. Draw a diagonal line across each rectangle.
3. Cut along the diagonal line.
4. Paste the left half of each one on the game-board.
5. Paste the right halves on stiff card and then cut them out.
6. Print the name of the transport on the back of each right half.



How to use

1. Young children turn the loose pieces picture-side-up and carefully match each one to its partner on the board.
2. Older children turn the loose pieces name-side-up, read a name and then match the piece to its other half on the board.
   Children take the pieces out of the packet and match them to their partners pasted in the book.

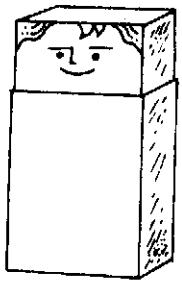
Note: Similar puzzles can be made from many other types of cheap charts like flowers, birds, vegetables, fruits, trees, etc. Be sure to cut off the printed labels and use only the pictures. Also discard obscure things like peaches, tulips, ostriches, etc. Below each picture pasted in the lab-book, you could neatly print the name of the object.

MATCHBOX PEOPLE

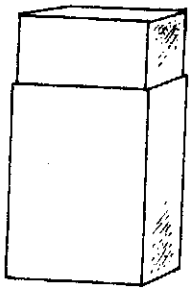
- **Vocabulary Development**
- **Story-Telling**
- **Social Studies**

You will need

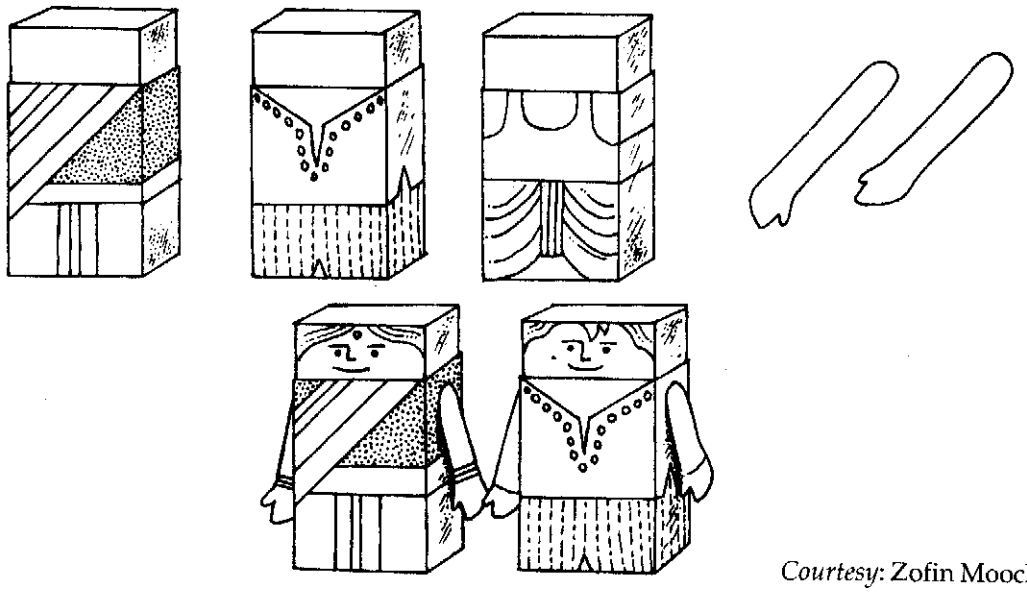
- Empty matchboxes
- Scraps of white and coloured paper
- Glue
- Pens or coloured pencils



How to make



1. Gum the 2 parts of a matchbox in the position as shown in the picture.
2. Cover the top part with light-coloured paper. Draw or paint the face. Add hair by drawing or pasting coloured paper.
3. Paste coloured paper round the bottom part. Add bits of another colour of your choice to indicate clothing.
4. Two strips of paper of the same colour as the face can be pasted to each side for forming the arms.



Courtesy: Zofin Moochhala

MATCHBOX VEHICLES

• **Vocabulary Development**
• **Social Studies**

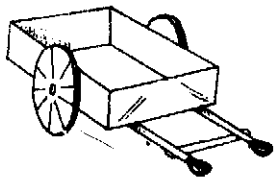
You will need

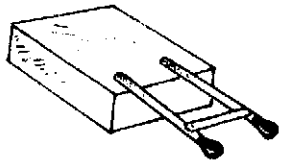
- Matchboxes (cardboard)
- Scissors
- Fevicol
- Scraps of coloured paper
- Bits of cards for wheels
- Clear cello-paper to make the windshield of the jeep or lorry
- Few used matches

How to make

SMALL CART:

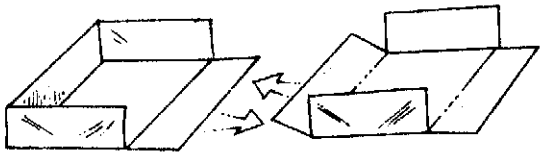
- One tray and two-and-a-half matches.

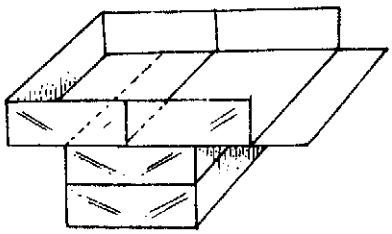




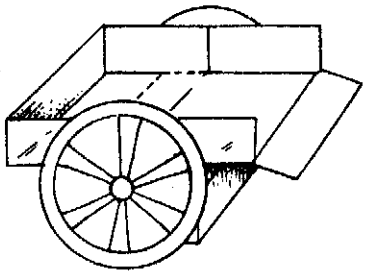
LARGE CART:

- Two trays and two whole boxes.





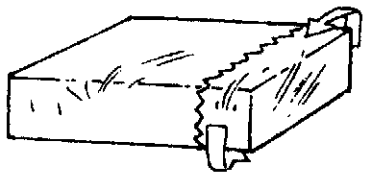
Two boxes for base



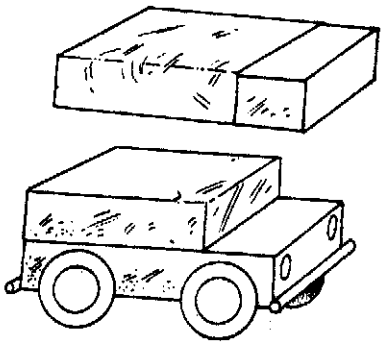
Wheels from cards

JEEP:

- One cover and one whole box.
- Take the cover and stick clear cello-paper over the front opening. This will form the windshield.
- Cover its back, top and sides with coloured paper.

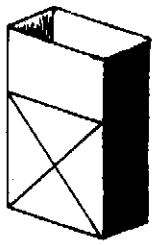


- Now take the whole matchbox and slide it one-third open. Turn it upside down. Put some Fevicol on the sides to make it stay in position.
- Cover with the same coloured paper as above.
- Stick the cover on top of the whole matchbox as shown in the picture. Add wheels, headlights, number plate, etc.

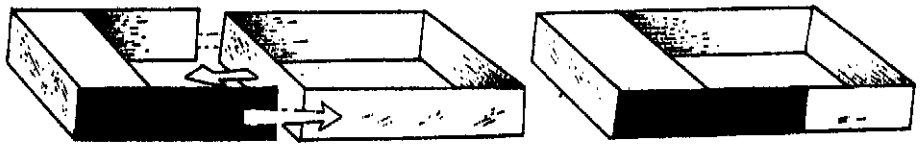


LORRY:

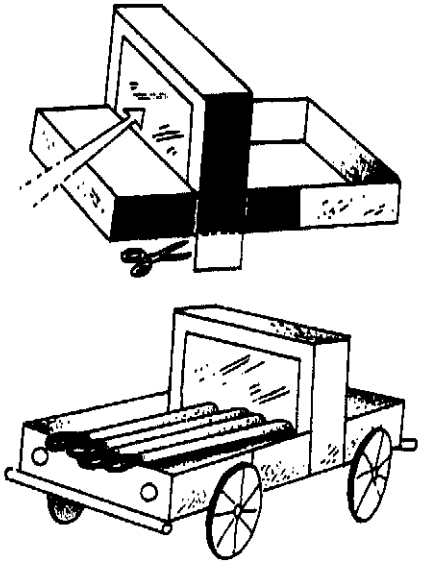
- One tray and 2 covers.



- Cut the portion as shown in the figure from the front and back of both the covers. Keep the long, black sides intact.



- Fit the tray into one cut cover as shown in the picture. This forms the engine and the body of the lorry.
- For the driver's cabin, fit the other cover over the engine. Snip off a little extra from the front side so that the driver has a window. Also snip off the extra side endings.
- Paste strips of coloured paper. Add wheels, number plate. Put some 'goods' in the back and off you go!



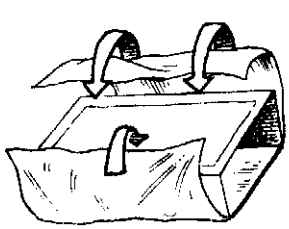
Courtesy: Zofin Moochhala

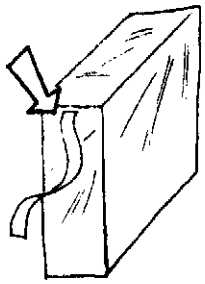
MATCHBOX ANIMALS

- **Story-Telling**
- **Vocabulary Development**
- **Social Studies**

You will need

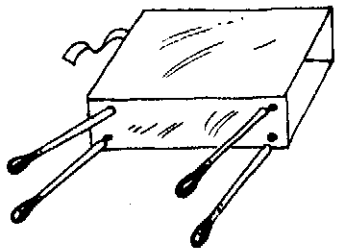
- Empty matchboxes
- Used matchsticks
- Old brown envelopes
- Glue/Fevicol
- A compass

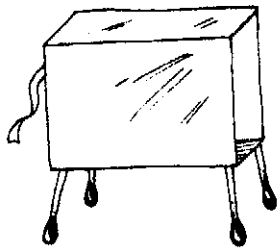


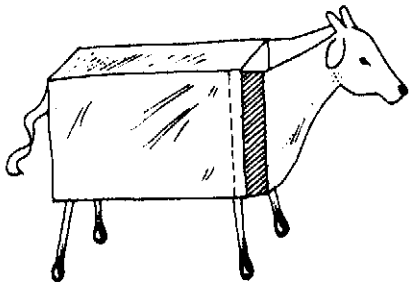


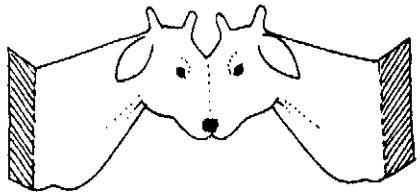
How to make

1. Cover the closed matchbox with brown paper cut out of an old envelope or paper bag.
2. Insert a piece of brown paper at the back to serve as a tail. Apply some glue to make it stay in place.
3. Apply a bit of Fevicol at the centre of the back of tray and push the tray into the cover. Press till dry.
4. Using a compass point, make 4 small holes at the bottom. Insert old matchsticks for the legs.
5. Draw a double image of the head. Cut it out. Fold it in half. Insert the shaded portions between the cover and the inner tray. Add a bit of glue so that the head stays in place.









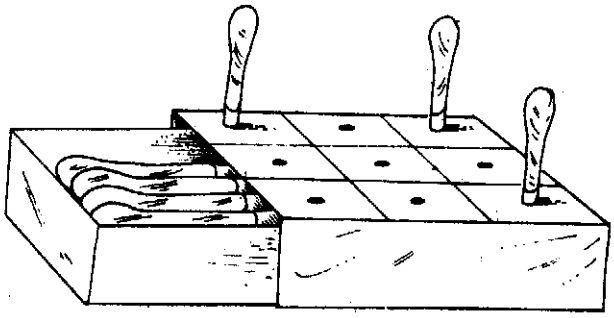
Courtesy: Zofin Moochhala

MATCHBOX TIK-TAK-TOE

- **Eye-Hand Control**
- **Taking Turns**
- **Planning a Strategy**

You will need

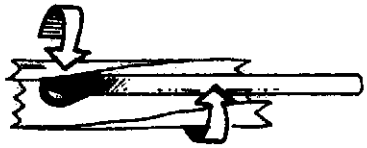
- One matchbox (cardboard)
- A compass or ice-pick
- Twelve used matches
- Cello-tape in 2 different colours
- Paper of old envelopes
- Blade



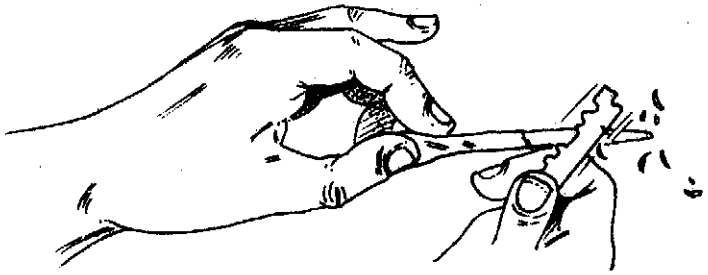
How to make

1. Cover and strengthen the lid of matchbox by pasting a strip of paper round it twice. Paper from the inside of old envelopes can be used. Be careful not to paste it shut, for the tray must be able to slide in and out.

2. Slide the tray in to give support to the box.
3. Mark 2 black lines across the top and 2 lines from top to bottom so as to divide into 9 equal spaces.
4. Using a compass point, puncture a hole in the centre of each space. Make the holes large enough to accommodate the matchsticks.

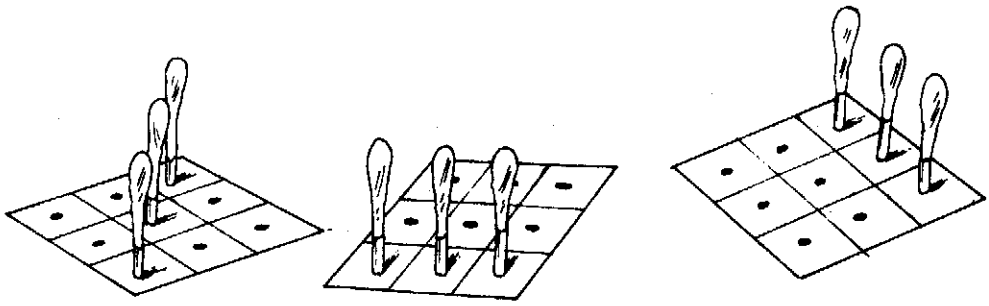


5. Wrap one colour of tape around the top of 6 matchsticks and another colour round the rest.
6. Sharpen the wooden tip a bit with a blade.



How to play

1. Each player takes 6 matchsticks of the colour of his/her choice.
2. The first player begins by putting a matchstick in one of the holes.
3. The second player inserts 1 stick in a hole of his choice. Each player tries to make a straight (horizontal, vertical or diagonal) line of 3 matchsticks while trying to outwit the other by preventing him from doing so.



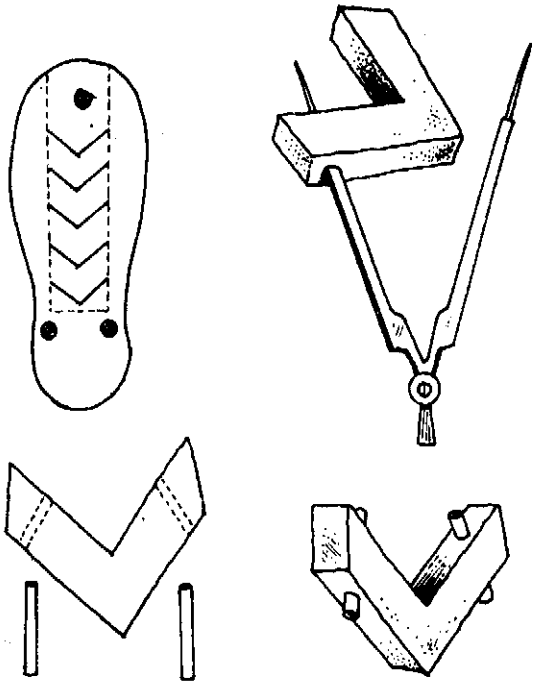
4. Very often, the game results in a stand-off. To earn a point, one has to succeed in making a row of 3.
5. After the game is over, store the matchsticks in the tray for safe-keeping and close the box.

RUBBER CLIMBING TOY

• **A Lively Accompaniment to Nature Study Lessons and Nursery Rhymes**

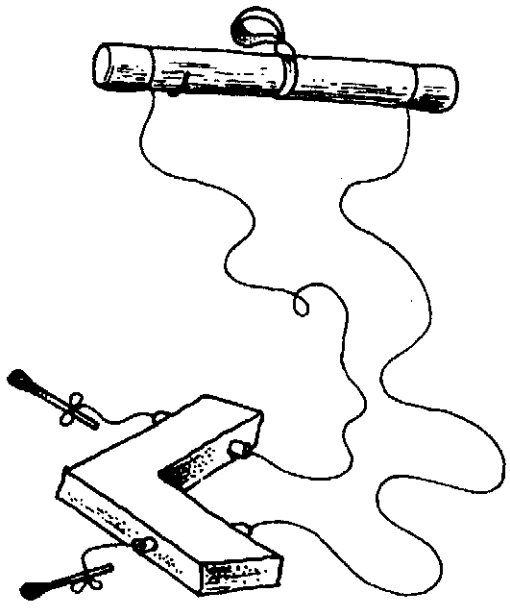
You will need

- An old rubber slipper
- A compass
- Used dot pen refill
- A thin bamboo stick
- Thin string
- Thick string
- A used match
- A very sharp knife. A thick wad of newspaper to use as padding when cutting the rubber, so that the knife blade does not get damaged



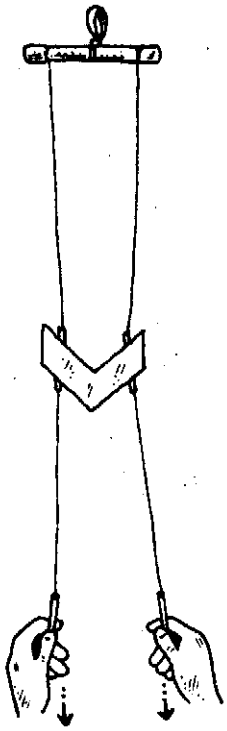
How to make

1. Cut a 5 cm wide strip from the slipper. Cut 'V' shaped pieces from it.
2. Puncture a deep hole at each end. The slant of the angle of the hole should be slightly inwards.
3. Insert a bit of a dot pen refill into the holes.
4. Take 2 pieces of strong, thin cotton string, each 125 cm long. Tie one end of each string to the notches made near the ends of the stick. Tie a loop of thick string to a notch at the centre of the stick (the notches keep the string from sliding off).
5. The other end of each string should pass through the dot pen refills and be knotted round half of a matchstick as shown in the figure.

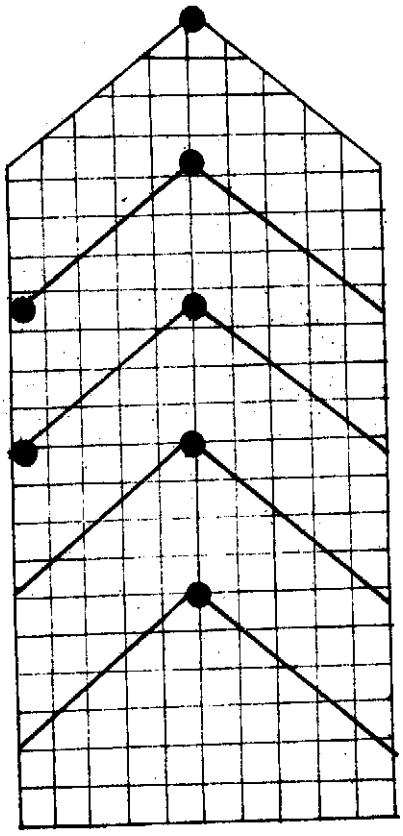


6. Hang the centre loop from a nail.
7. Hold a matchstick in each hand. Pull down to create a slight tension. Then tug alternately: left, right, left, right. See the rubber 'V' climb up! When you release the tension, the rubber 'V' slides down. Repeat the action.

Note: Paste a picture of a bee or a butterfly to the rubber 'V' and hang a flower from the centre of the stick. Or use a picture of a frog and a fly or a lizard and an insect. Place Jack and Jill on the rubber 'V' with a picture of a well at the top. Or use a mouse and a clock for 'Hickory Dickory Dock', etc.



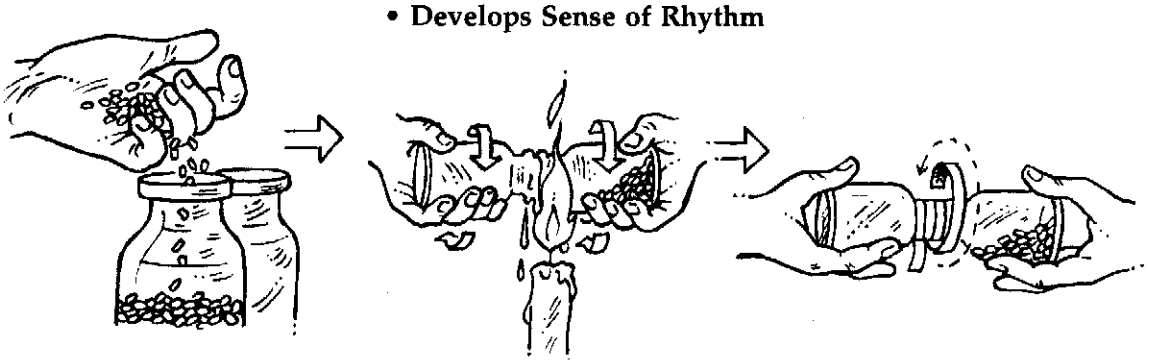
Pattern for rubber climbing toy
(actual size)



Courtesy: Arvind Gupta

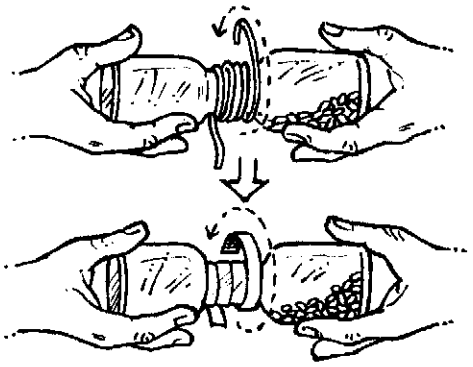
MARACA BOTTLES

- **Listening Skills**
- **Develops Sense of Rhythm**



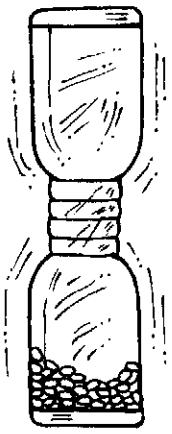
You will need

- 2 small plastic bottles of exactly the same size. Should be clear, hard plastic... not a soft, squeezy bottle
- A handful of seeds, dal, rice, dried peas or beans
- A candle and matches
- Scissors
- Brown wrapping tape
- Strong string
- Coloured cello-tape or electrician's tape
- A partner/helper



How to make

1. Remove the bottle caps.
2. Put some seeds or other sound-making small objects in one bottle.
3. Light the candle.
4. Hold the two bottles with their open tops together and slowly, slowly turn them in the flame until they melt into each other.
5. Ask your partner to hold the bottles securely together while you wrap brown tape round and round the 'necks' of the two bottles.
6. Tightly wrap string over the tape.
7. Then cover the string and brown tape with coloured cello-tape or electrician's tape.
8. Doing this slowly and carefully, you will have a maraca that will last for years!

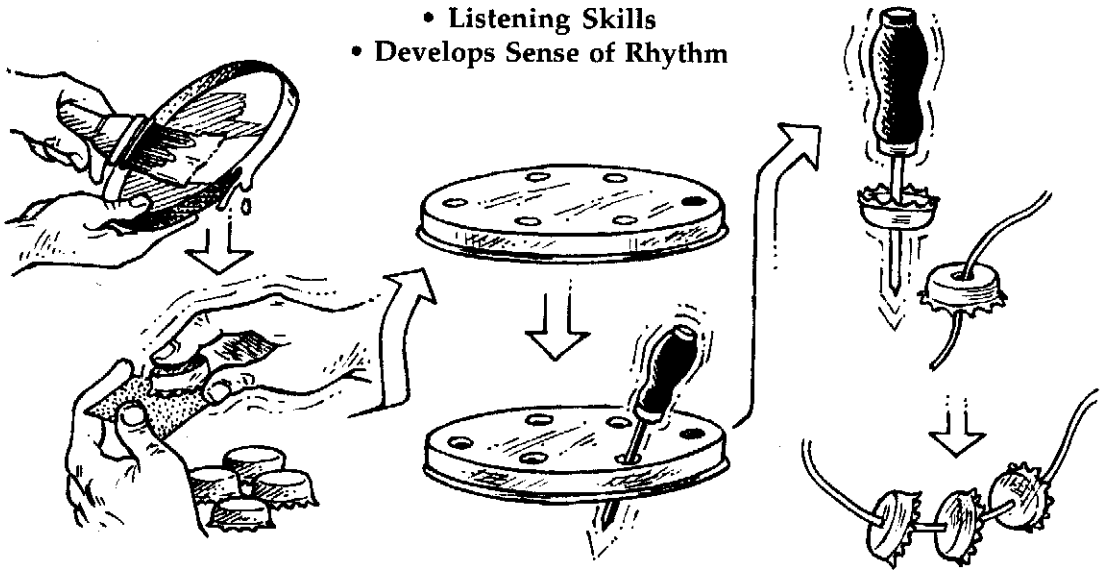


How to use

1. As you would use any commercial maraca. To mark rhythm for exercises or simple dances, to accompany songs and rhymes, to make simple sound-patterns for children to listen to and then repeat by clapping their hands in the **same** sound patterns.
2. Can also be used as a rolling baby's rattle in a crèche.

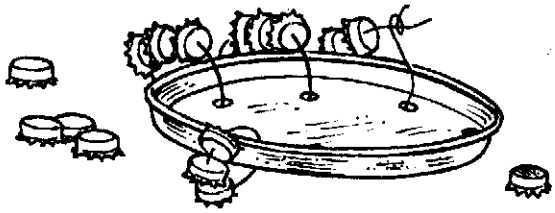
GYPSY TAMBOURINE

• **Listening Skills**
• **Develops Sense of Rhythm**



You will need

- A metal paint tin lid
- An awl (pointed instrument for piercing leather... used by cobblers)
- Steel (not aluminium) wire and a pair of pliers for cutting it into pieces
- 15 bottle caps
- Sandpaper
- Enamel paint and a small brush



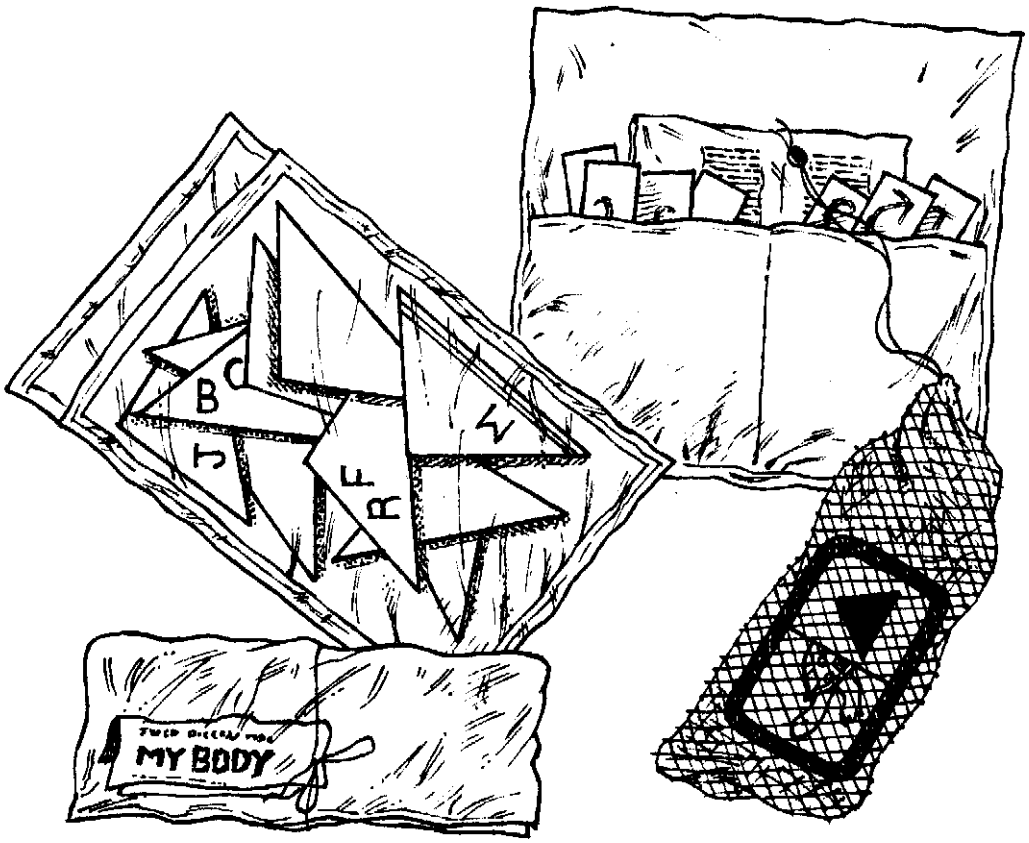
How to make

1. Paint the lid on both sides (inside and out).
2. Sand the bottle caps so that there are no rough edges. If you want to paint them, then do so with a very light coat of paint. Actually, the tambourine will make a clearer sound if the caps remain unpainted.
3. Mark 6 evenly-spaced dots on the outer rim of the lid.
4. Using an awl (or a big nail), pierce the lid at only 5 of the dots. The 6th dot is the mark for the place where a person's hand will hold onto the tambourine.
5. Pierce the centre of each bottle cap. Make the holes large enough so that the bottle caps will slide loosely and easily when they are strung on it.
6. Cut the wire into 5 pieces about 5 inches long.

7. String 3 bottle caps on a piece of wire and then insert the wire into one of the holes in the lid. Twist the ends shut.
8. Continue till all 5 holes have been filled in this way.

How to use
As you would use any commercial 'gypsy' or tambourine: To mark rhythm for LEFT/RIGHT, LEFT/RIGHT... or other exercises. To mark rhythm for simple dances. To accompany songs. To make a simple sound-pattern for the children to listen to and then repeat by clapping their hands in the **same** sound-pattern.

STORAGE OF TEACHING AIDS



- Net bags made from mosquito-curtain cloth
- Water-proof envelopes made from plastic tarpaulin... the type used for emergency shelters
- Ration card and other identity card type card-holders

A practical guide for Balwadi, Anganwadi, Nursery, Kindergarten and Primary teachers, this book gives clearly illustrated, step-by-step instructions for making a wide variety of useful and inexpensive classroom materials out of articles of everyday use. These teaching aids are useful for developing pre-school and primary skills in languages and mathematics. These are also good for eye-hand control and socialisation.

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